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The
Career of the Child

MAXIMILIAN P. E. GROSZMANN, Pd. D.

Author of "Some Fundamental Verities in Education"

ARTI et VERITATI

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INTRODUCTION

THE subject of pedagogy is making rapid strides. A body of scientific principles is rapidly being collected from the sciences of biology, psychology, anthropology, and sociology, all of which must be considered in the composite, applied science of education. One of the keenest, most patient and far-sighted workers in this applied science is Dr. Groszmann, author of the present volume. He has devoted many years to careful observation and experimentation in schools for both normal and abnormal children. This work has been supplemented by a careful testing of results in a practical way.

The long experience of Dr. Groszmann in the Ethical Culture School of New York City, and his more recent experience at Watchung Crest in dealing with atypical and subnormal children, added to his thorough and critical scholarship of the German type, has fitted him admirably for a discussion of the curriculum and of scientific methods in education.

In making a curriculum it is frequently assumed that the selection of subjects and the amount of time given to each subject can be determined without any reference to the children to be taught or the ultimate aim of education. Tradition has been the dominant factor determining both the matter and the method in education.

Dr. Groszmann has made a careful analysis of the aims

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of education; of physical, mental, and moral stages of growth and the best conditions under which this growth can be promoted and the aims of education attained. The subject matter is then analyzed to see in what way it may be made to contribute to the ideal development. But as the experiences of a normal individual are complex and varied it is necessary that unity of life and development be brought out of disparity of experiences, oftentimes apparently conflicting. This problem of co-ordination is an important factor in Dr. Groszmann's treatment.

In addition to the German idea of the spiral arrangement of studies, Dr. Groszmann has emphasized the idea that no true center of correlation can be found in the subjects themselves. At best such correlations must be artificial and unpsychological. The true center of correlation is the child himself. By this plan it is possible to follow the child's interests—and needs—and to emphasize things important for the particular child or group, and to "eliminate what is unessential, useless, and consequently burdensome." Dr. Groszmann has shown how the various activities should not properly be called subjects, but that there are the play activities, manual activities, and the various kinds of interests which demand varieties of knowledge which we conveniently systematize into subjects such as geography, arithmetic, history, etc. While he does not advocate making these subjects incidental, they should grow out of the interests of the child and the problems which he must feel to be real problems.

The first phase of pedagogy to receive discussion was that of methods. Many volumes have been written upon the subject of general and special methods, but upon no branch of pedagogical knowledge has the influence of scientific principles been so little felt. A great part of all that has been written down to the present time has been either from the purely logical point of view or has consisted of trite discussions by pedagogical theorists. In the present book, the author has made a long step in advance in the direction of working out methods from the standpoint of the science of education.

Method should be determined by the laws of development of the child instead of by pure logic and the subject matter itself. Method means not only a logical arrangement of the materials in a given subject of instruction, but also the question of its adaptation to nascent growth periods of the child and his interests as determined by native instincts and environment. Even in teaching mathematics the laws of growth and development of the child must be considered. In recent years the order of topics in mathematics has been very materially changed to harmonize with the well established laws of growth. Dr. Groszmann has pointed out the fact that not only chronological growth and physiological growth, but also psychological growth periods must be observed.

While the teacher of the various subjects which are treated in this volume will find little or nothing of prescription in the way of a definite curriculum to be followed day by day, the fundamental principles which determine what a child can be taught and the relations between the given subject and other subjects are thoroughly established.

It would mean much if every teacher from the kindergarten through the university could be well grounded in the fundamental principles of biology, anthropology, psychology, and sociology, and could then under guidance of a master study the great educational problems in the light of all the foregoing contributory sciences. This should be followed by a careful study of the special method in the particular subject to be taught. Adequate knowledge of the subject itself is, of course, presupposed. The present volume points in the direction which subsequent writers on education will find it profitable to travel.

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State University of Iowa.

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The Career of the Child

CHAPTER I

Dignity and Responsibility of the Teacher's Profession

BEFORE the life of man had assumed the differentiated character which resulted from the division of labor, the functions which now are singly assigned to different individuals were more or less collectively represented by all. In patriarchal society, every head of a family was his own provider, and what are now diverse trades were pursued as the common tasks of daily life. During the pioneer period of our own country, similar conditions prevailed, and the stately matron of by-gone times wove and finished with her own hand the linen and cloth from which she would make her lord's and her children's as well as her own garments; while the worthy husbandman was his own blacksmith, shoemaker, carpenter, and what not. Of course, at times they had, like Robinson in the story, recourse to the vast stores and manufactures of their European homes, importations from there having been the basis of their pioneer life in the wilderness. The *primitive* family, however, had no opportunity for such importations—it had to exist upon its own resources exclusively; and the knowledge and skill requisite for the various performances which signaled the dawn of civilization, were handed down from father to son, from mother to daughter. The parents were the natural teachers of the young, they were the centers from which the moral influence radiated, the guardians of the family gods, of the tribe's religion and honor.

In the more advanced society of a later period, we find indeed the family organization modeled after essentially the same plan; but the wisdom and higher knowledge of the tribe and incipient nation have become concentrated in a separate class, or caste, that of the priesthood. The priests are now the spiritual guardians of the people; it is their special function to commune with the gods and to mediate between them and the nation. From this divine intercourse, by their being devoted entirely to the searching into the mysteries of nature and human life, they obtain a knowledge which to the uninitiated appears truly magical and supernatural. They are not only priests, but philosophers, poets, astronomers, scientists, physicians, teachers; all the learned professions as *we* know them, were represented in their rudimentary, undifferentiated form by this caste which endowed all knowledge with a spiritual significance—as coming from the gods whose agents they were. All knowledge was then a divine revelation; even the arts of husbandry, of metalworking, and other crafts, were ascribed to the teachings of gods who had come down among men as helpers and teachers. Teaching was a sacred profession, then, and was essentially concerned in spiritual matters.

"Tempora mutantur et nos mutamur in illis". Times change, and we change in time. When the old order of things gave way to new institutions; when Greece and Rome became masters of the world, and in their turn were dethroned by the ascendency of the Teutonic tribes which hold sway over the civilized world up to the present day:—science, religion and philosophy became more and more democratized, and gradually accessible to the masses that had formerly been kept in subjection and ignorance. Teaching was now a *secular* profession. But the struggle between the guardians of religion and the promoters of secular ideas was long and fierce, and is not fought to the end yet. Church and State are still at war over the same issue, i. e. to whom the control of popular education properly belongs. The secular view that education, at least as far as school training is concerned, means merely the transmission of information, the imparting of so-called knowledge, the training of the intelligence, the drill in useful occupations, and that consequently it is a matter entirely separate from ethico-religious considerations, is certainly a very shallow conception. Knowledge and skill in themselves are neutral possessions; they may work good or evil in accordance with the character of the one who possesses them. It has been truly said that it requires as much mechanical genius and intelligence to *pick* a lock as to *construct* its intricate mechanism; and whether your boy will grow up to be a prophet or a seducer, will depend not upon what he *knows,* but upon his spiritual nature which will convert his knowledge either into a weapon of destruction or into a means of inspiration. Wisely administered intellectual training will certainly broaden a man's mind and make him capable of appreciating the relations which exist in the human life and in the life of nature; he will thus be helped to discriminate better between right and wrong and to choose more wisely in perplexing situations: but his actions will in every case be determined by the kind of character he has.

Indeed: teaching is essentially a spiritual thing. All depends upon the spirit in which information is imparted, upon the ideal towards which knowledge is directed; upon the educator's power to strengthen the will, to inspire the heart, to ennoble the aspirations of his pupil. If education has any reference at all to the building up of character—and who will undertake to dispute this claim?—it must have an ethico-religious background. In fact, ethics and religion are the fountain-heads from which the true teacher will draw his strength, and towards which the eyes of the inspired student must turn for invigoration and revelation.

When the conditions of the religious life were simple and elementary; when the life of all individuals was believed to be directed by powers which to all serious people revealed themselves in practically the same form; in other words, when the God of the prophet was the God of the multitude, when the national life expressed itself spiritually in a national religion:—the case was free from complexity. Education was then permeated by ideas and ideals which all held practically in common. Conscience was then the product of universal agreement, so to speak. Nowadays there is a perplexing difficulty. The form in which the religious idea manifests itself is no longer a simple and constant element; out of universal oneness, of elementary uniformity, there has emerged a differentiated organism of which the different parts live their individual lives. It has become a matter of common justice to respect the freedom of the individual, notably in matters of conscience; to recognize that each individual is a unit by himself, produced by forces which differentiated him from all others, and that the world will necessarily picture itself in each one in a form characteristic of his special constitution. Thus what was once a national church has been split up into a large number of sects and sub-sects; and religious notions shade off on one hand into creeds which were originally foreign elements, and were imported subsequent to the closer intercourse of nations; and on the other to abstractions of a more or less philosophic character. Unfortunately, mistaken fervor which fails to recognize that all these various groups strive for the same goal, believe in the same ideal, and draw their strength from the same eternal facts of existence, only in different ways and under different symbols, has produced a mutual mistrust and enmity between these groups, and education is very much the sufferer for it. Even in purely secular matters we are apt to be impressed much more by the *manner* of a thing, than by its meaning or essence; a pleasant lie offends us less than impetuous frankness. And it is only too true that religious fervor is prone to lead to intolerance and fanaticism. Thus free thinkers will ridicule orthodox believers as being plainly ignorant, and believers will denounce all who do not profess a personal god, as necessarily wicked and immoral; and Jews and Christians, Baptists and Methodists, Episcopalians and Presbyterians, Catholics and Protestants, are constantly branding each other as transgressors and gentiles.

This very struggle between different religious attitudes has led to a still greater secularization of public instruction than when there was merely a quarrel between the Church and State. For into whose hands can the spiritual guidance of our children be entrusted if there is so much uncertainty as to what is the true religion? The public schools have therefore in many instances declined all responsibility for the ethico-religious training of their pupils, confining themselves to secular instruction pure and simple; on the other hand, numerous sectarian schools have sprung up, all supplying an education which indeed contains the ethico-religious element, but which, by its pronouncedly dogmatic and separatistic character, tends to widen the gulf that unhappily gapes between different portions of the nation. Denominational schools, like all denominational institutions, exhibit the tendency inherent in all political and religious systems that have become institutionally fixed and authoritative, viz. the tendency of self-perpetuation in place of growth; of acquiring and maintaining power instead of recognizing the principle of freedom and progressive differentiation.

The secularization of instruction has, among other things, exerted a deplorable influence upon the quality of the teaching talent. When education was a matter of spiritual concern, when it was a prerogative of a class which represented the most spiritually minded elements of the community, the teaching was undertaken with a seriousness of purpose, and an equipment of knowledge, as high as the respective stage of culture allowed. Teaching was, then, a life-calling. And we must not fancy that the priest-teacher of those times was not professionally fit for his particular work. There was perhaps little, or no, strictly professional training in these ecclesiastical times; but teaching was then as now an *art;* what lack of training there was, was largely compensated by empiric knowledge of child-nature, by intuitive insight, and by recognition of an ethical aim. At an early date, those among the priests who showed eminent fitness for the office of teacher, were selected for the special function; and indeed, even tho the caste appeared as a unit before the multitude, ability and preference soon worked a differentiation of tasks among its members. Measuring the teaching done under these conditions by the standard of the times, it was certainly of a high order, even tho it was of an exclusixe character and bestowed upon a favored few.

When teaching became the business of secular persons who did it for hire, the spirit of the work degenerated at once. Not that there had not been from Quintilian's time down to our own, many inspired secular teachers whose influence was ennobling and far-reaching. But the general trend of secular education was utilitarian, and the teachers were recruited from all walks of life, mostly the lowliest. Secular education had a democratic tendency—it embraced wide circles and gradually developed the idea of popular education. Grand and momentous as this new ideal was, it increased the demand for teachers at such a rate that the supply was often insufficient. For the so-called people, i. e. common people, a minimum of instruction was supposed to be ample, which permitted the employment of very ignorant persons as teachers; as these were selected, as a rule, by "patrons", or boards, rarely representing the highest culture of the times, incredible conditions prevailed in many schools of this type. These were the days when anyone who was not good enough for anything else, was still thought competent to be a school-master; if he could wield the rod with satisfactory energy, all was well. Cripples and invalids of all kinds, slaves or servants, broken-down traders, shepherds and blacksmiths were the teachers in the secular elementary schools, or were employed in homes as tutors of the young. In higher instruction alone students of divinity long held their own and were employed in Colleges and High Schools and as private tutors in wealthy families. But on the whole, the profession, if such it can be called, was in a degraded state; it was "low business" as it was called even in the earlier days of our own glorious republic. Teachers had no social standing at all; in compensation and respect they often ranked lower than ordinary servants.

These conditions are not altogether a thing of the past. Even nowadays, it is not uncommon for a man to try his hand at teaching after he has failed in everything else; and the scholarship and professional training of teachers is not generally high. A French, German, or Italian immigrant, if he does not readily find employment will set himself up as a "professor" of languages or music, or what not, supposing to have a perfect right to do so. Many people entertain the idea that all that is necessary for being able to teach a subject is to know it; the fallacy of this notion it is not easy to demonstrate to one who is ignorant of the psychological laws that govern the workings of the human mind. But the conditions would not be half so sad as they are if these professed teachers really *did* know what they undertake to teach; yet instances are only too numerous when a very little knowledge is puffed up in a very delusive semblance of proficiency. Teaching has as yet become a profession with a very few; most teachers found employed in many of our schools are either young men who use their position in a public school as a stepping stone to "something better", or young girls who want to fill the interval between their own school days and the blessings of married life with some sort of respectable occupation—and school teaching has at last gained recognition as a respectable occupation. The case of these young girls is perhaps not the worst feature of the general situation, by any means; they gain in this way an experience which may stand them in good stead when they have children of their own. It has become a growing conviction among progressive educators that Fröbel was right when he suggested that every young woman should be given a chance to study and handle children as a preparation for motherhood. The only difficulty is this that most of our young teachers enter upon their work without real preparation for it; they have little understanding of it, they have likewise little love for it. With them it is a daily mechanism, the veriest routine; and there is danger that they will carry the superficial notion of child-life and education which governs their work in school, into their later life of maternal functions. And if we may judge the public valuation of the teacher's services by what they are "worth" to the school boards in dollars and cents, their social standing is still very mediocre; few receive a salary that makes them financially independent, or even free from care or that can compare with the wages paid to clerks, cooks, and other such worthies whose responsibilities are vastly inferior.

However, if we survey the whole field of public instruction, we may congratulate ourselves upon the great change that has taken place during the last century. Ever since the days of Rousseau and Pestalozzi, there has been gradually evolved a higher conception of the office of the teacher. Both these great minds recognized the need of a better understanding of the child-soul before we can administer to its wants. It was the dawn of a child-psychology that was destined to revolutionize education. Herbart and Fröbel were the apostles of this new gospel, and whatever is good in modern developments can be traced back to suggestions from these two great teachers, erroneous as some of their philosophical premises were. All at once the child became the center of interest, and teaching assumed a new significance. The great movement of child-study has stirred up the minds of educators especially in our own country and in Germany, and has resulted in the beginning of a new pedagogy based upon the careful study of the *object* of education, the *child*, a pedagogy which is at once a science and an art:—it has served to spiritualize the work which has so long been under the bane of a one-sided secularism. The teacher, from the new point of view, is not merely a lesson-giver, a mechanical contrivance for the pouring in of information; he is not the child's jailor, and the arch-enemy of all the child's natural impulses and instincts: he is his friend and counselor, loving him and studying him; his spiritual helper and, perchance, his assistant physician, his servant and his ideal—in one word: his *educator*. Child-psychology has brought to light with scientific accuracy the fact that it is idle to undertake intellectual instruction without influencing the moral faculties; that no absorption and normal assimilation of instructive matter is possible without due attention to the training of the will; that intellectual training of the wholesome kind is identical with will training, and that all we do with the child will be somehow reflected in his moral and religious character. All the forces that make up the child's environment are of educational import and will influence his fortune in after life. Secular education as it has been understood is an illusion, an impossibility; all education is in its very essence spiritual education, for good or evil. Where the spiritual element is neglected, education will be a dismal failure; it will not be simply negative or neutral in its effect, but will tend to corrupt, or at least confuse, the moral character of the child.

Thus the profession of the teacher assumes a new dignity. He is again, as of old, recognized to be a spiritual power, and comes next to the parent in direct and telling influence upon the future and character of the child. His is an almost priestly function inasmuch as the young soul is given into his keeping; and since it has been demonstrated that psychological development is bound up with physiological conditions of health and disease, he will have to assume at certain junctures some of the duties which are professionally assigned to the consulting physician. In his person, he will therefore represent a combination of functions which in a measure revives that ancient order from which the special functions of the teacher has become disintegrated. As he will have to be in close touch with the ethical and religious life of the community as represented by the progress in church and philosophy, so as to develop and refine his own religious life; further with the medical profession whose assistance he will need daily in solving the educational problems which individual children will present to him; and finally with the progress of science in general which he is to mediate to young minds in his charge: he will be instrumental in bringing about a new brotherhood and community of spiritual interests—a community which will differ from the ancient caste-organization of patriarchal times mainly in this that it will be based upon freedom of conscience and the spirit of progress and mutual tolerance and helpfulness.

This new dignity entails a new responsibility, indeed one so vast that none of us will ever be able to attain the ideal. "But no end can arouse enthusiasm if complete attainment be possible" (Prof. Geo. H. Palmer). The teacher must stake his whole life, spiritually, on his work; he must sanctify his entire personality and sacrifice it to the sacred duties which he assumes.

The teacher is the school. It is not the course of studies, nor the "methods" employed, upon which the success of school education depends; but the principles which the teacher *lives,* the spirit which imbues him, the character and personality of him thru whose agency the abstract facts of knowledge become living realities and moral forces to the children.

Not every scholar is necessarily a teacher, but every teacher must be a scholar. Not in the sense that he be an expert in any one science or a number of sciences. But he must possess the *scientific* spirit; the spirit of research and progressiveness, and that genuine scholarship which is not so much concerned in the accumulation of a vast number of facts as in the intelligent use of those which are at hand. The teacher must be an investigator and aspire to larger knowledge, such as will expand his own personality and widen the horizon of his interests. He must not know just enough to teach and not be found out by his pupils—but must personate to them, not an infallible oracle by any means, but the incorruptible dignity, the broad interests and salutary influences of true science, even tho it be in a modest way. The teacher's interest ought not to be confined to the four walls of his school room lest he become narrow and self-complacent, and petty and nagging. He must live the larger life, and concern himself in the great problems of his age, so that he may keep steadily before him the great aim of all educational effort, viz. to fit the children to carry the banner of civilization to still loftier heights, that "banner with the strange device 'Excelsior!' "

The true teacher will cherish motives in his bosom so as to awaken high motives in the breasts of the young. Too much is our present life given to emulation; it is not excellence we strive after, but the ability to excel, to surpass, to outstrip *others*. Our age is one of merciless competition, and our ordinary school practice, by a seductive system of marks, reports, and prizes, arouses and stimulates this unhappy tendency in our young children. "The larger part of the pupils leave the school with no higher aim than to outstrip their neighbors, not to help them, in the pursuit of the comforts and luxuries of life." (A. Caswell Ellis, in the "Pedagogical Seminary", Oct., 1897). Here is the teacher's opportunity. If he has the high motive, if he is not swayed by sordid considerations, petty jealousies and emulative ambitions; if he has the unselfish heart, if he loves his neighbor as he does himself: then will he inspire his pupils with the force of his noble example.

The main factor of the ethical influence of the school is certainly the teacher. "There are teachers, and there are others who falsely enter that holy office. . . . There are teachers in whose very presence is delight. The child feels the inspiration of a great life and is influenced accordingly. Such a teacher is an effective apostle of a better living, and gives an uplift and an impulse to the students' life that cannot be measured this side of eternity." (Preston W. Search, in "The Ethics of the Public Schools". Educational Review, Feb., 1896).

It is not so much a matter of what ideals a teacher teaches, as of what ideals are in his own heart. These ideals will influence his entire manner. There must be absolute fairness and self-control, unfailing cheerfulness and sympathy, a readiness to appreciate the pupil's side of the problem and to forget his own; a loving interest in the individual needs of each child, a wise discernment of causes and effects, physical, moral and intellectual; a tactful attitude towards the parents whose co-operation must be secured, the influences of heredity and environment having been discreetly studied; a ready heart and a willing hand to help the most forlorn and abandoned little soul and neglected body even more promptly than the dainty child of wealth and winning manners. "Come unto me all ye that labor and are heavy laden and I will give you rest". We must be meek and lowly and glorify ourselves by service.

In a stirring lecture before the Brookline Educational Society, Professor Geo. H. Palmer expressed these beautiful thoughts: "The great characteristic of teaching, and one that is too often overlooked, is that in the teacher we must expect a readiness for vicariousness. We must take up a double-ended life; we must see not only where truth arises, but where it penetrates. . . . A teacher cannot live his own life, but must live the lives of others—many others, and all different. He must take on conditions not his own, and look at things from another's standpoint. He must lead the student on, step by step, and then must be continually retreating to the first standpoint and first principles."

We must perhaps not take it literally when he says a teacher cannot live his own life. Unless a teacher has freedom to be himself, to live up to the best that is in him, to live his own individual life, he cannot understand the lives of others. Truly by "taking on conditions not his own", he will expand his own individuality, and his must be the capacity to be truly happy only when living with and for children. Well does Prof. Palmer say: "The teacher puts himself inside of the young lives; many times he lives the lives of all; he is among you as one who serves. . . . We must bear the child's burdens vicariously, we must study out the line of the least intellectual resistance; must spend days in discovering where the burden can be rolled away. Knowledge buffets the child; we must aid it in penetrating the young mind with the least friction. All this we must do, not for our own sake, but for the sake of the children. We must love to do it, and unless we do, it is no profession for us."

It has been said before in this chapter that the teacher should have larger interests outside of the schoolroom. Then, reference was made principally to the expansion of the teacher's own personality. But there is another side to this suggestion. The fuller conception of education recognizes the fact that the teacher is only one of many factors that determine the future character of the rising generation. He is one of the most effective to be sure; but the more or less silent influences of the general environment of the child, at home, in the public thorofares and conveyances, in places of amusement and recreation, must not be underestimated in their distinct significance. This environment comprises the city where the child lives, the state to which this belongs, the native country, and in a larger sense the civilized portion of our globe of which the immediate school location is but a small and perhaps insignificant part. Remote as some of these influences may seem, they are no less real and determinative. The institutions of the immediate community, the politics of the state, the ethical conscience of the nation as expressed in its public opinion and family life no less than in national problems of finance and foreign relations; the general trend of thought which shapes the world's destiny: all these elements affect very notably the conditions under which our children grow up, and they will be reflected in their lives. The broad-minded teacher will have an active interest in all that pertains to these common human affairs. He is himself a social factor of no mean importance and should make himself felt as such. "I perceive," says Walter Channing, "the idea gaining ground that *true education means a correlation of all educative forces,* both of the home and the school, supplementing each other and working harmoniously together".

The conscientious teacher will endeavor to bring about an intelligent co-operation of school and home, first of all. He will everywhere and under all circumstances stand up publicly for the cause of a rational education. In the rural districts whose school problem is particularly perplexing, he will be a missionary, an educational center from which may radiate impulses of enlightment and progress, inspirations for a higher life. There should be as many such radiating centers as there are school districts. In the city the teacher will be interested in the cleanliness and decency of streets, highways, cars, etc.; he will propagate the idea of public playgrounds; he will be an ardent auxiliary to the social reformer in the cause of uplifting the conditions of the poor and miserable, as to better homes, better food, better wages for the laboring man so that his children be not cheated out of their birthright; he will be active in all endeavors to elevate the moral tone of the community. He will be one of the factors that shape public opinion. He will be a worker along philanthropic and religious lines of activity—not with narrow denominational fanaticism, but with the enlightened zeal of the true humanitarian. He will be an energetic politician, not in the spirit of selfish partisanship, but with a view of leading the commonwealth of which he is a member, on to the realization of loftier social and political ideas than are embodied in it at the time being.

Great problems are agitating men's minds now, and struggle for solution; the generations of the twentieth century will have a purer religion, a juster social order, a more perfect political government, it is to be hoped, than we have.

What all these changes will imply, who can tell? Theories and systems have been advanced by many among us, but the new order of the future will necessarily shape itself in accordance with eternal laws of growth, and the outcome can be only dimly divined by living men. We can, however, as teachers, help to make the happier and better mankind of coming days; they who are now children will be the builders of that future. Let us do our share that they may see with clearer vision than we can, that they aspire to noble aims, that they may think their own thoughts, that they be touched in their innermost hearts by the sense of the responsibility that awaits them; that they be free from cant, prejudice and narrowness, that they may divine the eternal in contrast to their own finite existence, that they will recognize the spiritual forces which rule the world. Reform is not so much a matter of laws and government; it is the outcome of a spiritual ethical regeneration. The problems of today are educational problems in their very essence. This means indeed a new conception of the teacher's functions, and a reversal of common methods of education. "The utilitarian and money-getting, so called 'practical' side of life," says A. Caswell Ellis in his "Philosophy of Education" ("Pedagogical Seminary," Oct., 1897) "must be balanced off by giving in the schools a deeper appreciation of those spiritual elements in man's nature which alone distinguish him from the brutes. They must feel that there are inexhaustible stores for the human soul far beyond mere worldly goods or intellectual possessions, and that this truer wealth can be shared by every one to his full capacity without limiting the supply to his neighbor, that of this wealth it may be truly said that he who scattereth abroad increaseth. The full breadth and depth of the human soul must be better touched by our educational efforts, and the abnormal amount of attention given to the logical, intellectual faculties be balanced by a more sane development of those no less human and God-given powers which so potently affect life and character, and whose proper development alone can make the sane and wholesome life. In a word, full unity and balance of the human soul should be maintained and the whole man educated."

This is the spiritual regeneration of which the teacher is largely the representative and agent. It has been said before that in the teacher there is re-established the union of those spiritual forces which were integrated in the ecclesiastical caste of ancient times. This thought may be put into another form: it is thru the educational idea, thru the conception of human progress as an educational process, that a new unification of spiritual efforts can be effected. The physician is then no longer a mere administerer of drugs and medicines, but the teacher and apostle of the healthy and vigorous life. The priest is no longer a savage shaman or exorcist, or denominational fanatic, but a mediator between man's secular and spiritual natures, a teacher of the higher life, irrespective of separative creeds. Science and philosophy have ceased to be magic and idle speculation; they have attained significance as bearing directly upon the life conditions of our race, and upon a truer conception of the divine universe. All these professions are educative forces; education is the new focus in which these various activities center. Thus a new brotherhood of spiritual potencies is forming on a broader basis along lines of greater freedom and more vigorous growth and effectiveness. There is no longer a community of creed; you and I may conceive of the powers that govern the universe and make for righteousness, in very different ways, and call them by different names. But let there be a community of spirit; an honest seeking after truth; let there be a unity of effort, of deed, if not of creed. Let us all grasp hands and unite our forces in the service of humanity. For such is the new dignity and the new responsibility of the teacher's profession.

CHAPTER II

The Significance of the Kindergarten and its Rational Development

THE new education, as the progressive educational movement of our times has been called, took its origin in Pestalozzi's seemingly impractical enterprise in Switzerland. Pestalozzi died imagining that his life-efforts had been a failure; yet his ideas have fertilized the barren field of pre-revolutionary education and have made it bring forth an abundant harvest. It was, however, due to the intuitive mind of Fröbel to divine the needs of childhood in their fullness, and to give a definite shape to the new educational ideas so as to serve as a working system for the practice of early education.

Herbart, the German philosopher; Spencer, the English thinker, and the later child study movement, with a host of other influences, have given an enormous impetus to progressive activity, and we have now a very different conception of the meaning of education from what it had been at the time of our fathers. But the Fröbelian Kindergarten is the only division of the school system at the present time which is altogether based upon definitely framed and widely recognized principles, and the practice of which has been worked out in satisfactory detail so that it may be at once introduced and permanently established. This cannot yet be claimed for the more recent reform ideas which are destined, let us hope, to revise our entire educational system.

It must further be admitted that many of these later principles have been directly derived from the experiences of the kindergarten. Thru these latter the *child* was re-discovered, as it were, by educators; the child became the center of pedagogical thought and interest, and the right relation and proportion of educational forces became recognized.

The kindergarten, then, has been truly the pioneer of progressive educational methods. Following the introduction of kindergartens in our school systems, there came a new awakening of teachers and parents to the real meaning and import of education. This introduction signified a powerful reaction against formal teaching, routine methods, mere book learning, and undue forcing of the child. It is curious to note how the kindergarten has everywhere served as a wedge for opening a point of vantage where the new forces could enter. This process was not always a conscious one on the part of its promoters, but it was ever sure of success, altho occasionally slow and patience-trying. It is an interesting fact to be recorded that our first efforts to reclaim Cuba from the desolation and ruination in which Spanish misrule and internal strife had left the Pearl of the Antilles, included the sending of educational missionaries for the reorganization of the schools, and that the kindergartners were the advance guard of this army of peaceful conquest. Thru the kindergarten the little waifs of the Reconcentrados were being won over to civilization and prosperity: it preaches the gospel of good will to man, of freedom, and of happiness. So it did in the Philippine Islands.

Thus, the kindergarten is a missionary of Teutonic civilization in far-off India, the dreamland of the Brahmans, where now Eastern and Western methods of culture are coming into close contact. Under the direction of the Swami Vivekananda who was India's representative at the World's Congress of Religions at Chicago in 1893, a Miss Noble, an English girl, opened the first kindergarten for Hindoo children some years ago.

New as the kindergarten seems to be, it is in reality an old ideal revived by the educational renaissance of the XIXth century. The great Amos Comenius who was born in 1592, did not only anticipate the modern psychological methods of concrete and constructive teaching, but he even outlined an Infants' or Mothers' School which corresponded broadly to what we now call the kindergarten. He maintained that in this Infants' school the child must be taught the elements of everything necessary to the building up of the life of man, including the rudiments of nature-knowledge, history, language, etc. His phraseology appears at times strange to us, but he means essentially the same thing which we mean, altho naturally his psychology was rudimentary. He even compares the school to a garden, and in his "Schola Ludus" (The School as Play) he revives the ancient Roman conception of the school as "schola", viz. leisure, pastime—or rather an opportunity for culture thru the free play of our faculties where the mind is not weighed down by professional and routine duties.

Why, then, is the kindergarten called a "kindergarten", a children's garden? Poetically inclined minds have likened the children to plants and flowers, and to them the kindergarten is that wonderful place where children are reared and cherished as a gardener cherishes his roses and violets. This metaphor is not without significance, for we may well learn from the plants the lesson of natural growth, nourishment, care, and sunshine, and apply it to the bringing up of our little ones. Even their growth must be carefully guarded, and their minds and bodies properly fed so that they may mature in due time, and not sicken and degenerate; and into their young hearts must shine the sunshine of love and cheerfulness to make them thrive and grow strong.

But Fröbel's idea of the kindergarten was rather that it should be a garden *for* children—a place where there was freedom from the restraint of conventional life; where there was pure air and abundant light, healthy exercises and inspiring observation, play, and joyfulness, and common with nature, direct and spontaneous.

This was in itself a new departure. It rescued the children from the pedantic tasks of the traditional school. The four walls of the narrow schoolroom with its overcrowded floor space, its stuffy air, its cheerless routine, were a veritable prison for the young soul whose longings were for that outer world of beauty and activity, of freedom and fragrance from which it was now shut out. The kindergarten meant a re-establishment of natural conditions, at least in principle. For the ordinary city child, even the nursery is devoid of those charms and of that healthy atmosphere which the child needs for his normal development—it means confinement, restraint, lack of oxygen and of experience.

For this reason it has been maintained that the genuine kindergarten should not be merely a room or hall set aside and fitted up for games and occupations, but a real garden, or open air space, where the children might run about and play and see plants, even planting them, taking care of them, etc. In the kindergartens maintained by the "Kindergarten-verein" in my native city of Breslau (there are no public kindergartens in Germany), the children are kept indoors only in inclement weather; otherwise they play in the open, and benches and tables are provided under a shed where they devote themselves to the quiet occupations. At the Pestalozzi-Fröbel-Haus in Berlin, there is a real flower and vegetable garden for the use of children where they dig and plant and water and harvest. Here is the first stage of the development of school gardens whose importance for nature study and elementary agriculture cannot be overestimated.

This arrangement is particularly helpful in familiarizing our young children with their natural environment. True, conscientious teachers are ever endeavoring to bring Nature to the children by way of detached pieces from her vast store of creations. It is best, however, to take the children *out* to Nature whenever possible, and to transplant many of the lessons under the vast dome of the sky which is usually shut out from the child's consciousness by the low ceiling of the schoolroom. Let us substitute for some of the *symbols* of the ordinary school course, the realities abounding around us. This would correspond to Fröbel's principle of *internalizing the external,* that is of converting the world of reality outside of us into a system of sensations, precepts, and concepts which makes it our own world. The world of objects thus becomes a world of experiences and of mental images, upon which our mental life depends. Doing this, the children's organs of perception, their senses, are trained to receive correct impressions and to be capable of exact observation.

How necessary such training is, those will know who have had occasion to test the ideas of young children whose early experiences had been deficient; the perusal of Dr. Stanley Hall's now famous monograph on "The Contents of Children's Minds on Entering School" (New York, E. L. Kellogg & Co., 1893) will also be very instructive. Cf. also "Vorstellungskreis der Berliner Kinder beim Eintritt in die Schule." Berliner Städtisches Jahrbuch 1870.

A pathetic story was told by the principal of the kindergarten department of the Ethical Culture Schools. It was the custom to send the little ones to Central Park for games and nature work whenever possible. One day a new child from a down-town district was among them, and when the children were invited to play on the lawn, the little waif cried and could be induced to step upon the grass only after much effort. It apparently regarded the green surface as dangerous to tread upon; the warning in the down-town parks, "Keep off the Grass!" had played havoc with its young mind.

Quaint sayings and doings are reported of the children who attend the Vacation schools, particularly when the children are taken to the country; they are a source of delight to the directors and teachers of the schools. Many of the children have never been on a street car, a train or a boat, and the commonest sights of country life are wonders to them. Here are a few of the funny things that happened:

In the Chicago Vacation Schools an early trip was to Lincoln Park. One of the boys, seeing a chicken asked: "Teacher, wot's dat t'ing?" "That's a chicken. Its the—" "Wot yer givin' me? Dat ain't no chicken. It's got fedders on. I know a chicken, I guess. My ma she had a chicken onct for dinner, 'n' and it didn't hev nut'in on but skin." This same ignorance, or unacquaintance with the manifold nature of their environment is displayed in reference to other objects.

"There goes a fu-ne-ral! There goes a fu-ne-ral!" sang out a little girl as she waited in the door of a railway station. She saw the cab passing. "Somebody's daid! There goes a kerridge!" Her only ideas of cabs and carriages were connected with death and she could hardly be made to understand that they were pleasure vehicles as well.

These facts teach a tremendous lesson. They show how essential it is to give the child a well-rounded experience of every day facts. We take too much for granted. In different environments, children's misunderstandings will, of course, be found along different lines; we must, however, be on our guard against them everywhere.

Here the significance of the true kindergarten is evident. It helps the child to gain true and clear concepts, thru sense training, and thus to develop his inner life.

The counterpart of the Fröbelian principle mentioned before, viz., of internalizing the external, is the opposite principle of *externalizing the internal*. In other words there are forces in the child's soul constantly striving for *expression*. Indeed, if man were but receptive, he were not man. What makes life LIFE, is activity—such an activity as corresponds to our individual character, which is an expression of our nature and being. Without activity, we were to all intents and purposes as good as dead. True, even the ordinary school affords opportunities for self-expression in the various branches of school work. But this opportunity is often based upon an adult standard and upon adult methods, apart from the fact that it deals largely with symbols of things, instead of with realities. It is the great service of the kindergarten that it has recognized the demand that a child must be measured by a standard of his own, and that the young child needs opportunity for concrete expression—for muscular activity. The various occupations of the kindergarten have been devised to meet this need. And they partake of the nature of *play,* in this manner corresponding to a natural instinct which deserves much more recognition in the school curriculum than is usually accorded to it. In this sense the gifts and occupations answer practically the same purpose; and while they are in the nature of expressive work, thru building, weaving, modeling, etc., they also serve the reverse purpose of mediating innumerable experiences as to material, form, color, tools, etc., which in their turn complete the internalizing of the external. Thus there is mutuality of effort and effect; impressions strive for expression, and expression converts itself into experience.

Said Mrs. Kraus-Bölte, a veteran of the kindergarten in this country, "Play thus rightly understood, proves itself a means of assisting the inner growth of the child, independent of formal instruction. Self-seeing, self-hearing, self-making, self-experience, self-thinking—these are the activities of the child, and rightly developed, they are associated with happiness, gayety and joyousness."

Again, in their representative, or if you will, dramatic, games, the children are introduced to the various typical occupations of man, and learn to appreciate the part each individual pursuit plays in the network of human civilization and service. The games of the shoemaker, of the blacksmith and others, never fail to arouse the children's interest and to satisfy their natural imitativeness of adult ways. Children of this age want to be and do all they see their elders be and do. It is well to take advantage of this natural instinct so as to widen the child's circle of experience.

Other games are intended, not so much to *dramatize* human existence, as to *symbolize* the life of nature. These rarely fail to personify the forces of nature, and so to establish a personal, sympathetic relation between the child and the so-called dumb creation. When this method is not vitiated by over-sentimentalism, it corresponds with a natural instinct. Thus, the rain comes down to the great brown house where the flowers dwell; or the alder by the river shakes out her powd'ry curls; the pretty little violets are waking from their sleep; the child asks of pussy-willow, the pretty little thing, where it is it comes from, how it is it grows; he sympathizes with the chilly little chickadees buried in the snow; and after an imaginary walk thru field and lane, the little boy runs home to mama to tell her: I saw so many things!

While all these plays serve to stimulate observation and to arouse the sense of consanguinity of man with all things alive; while further they are of inestimable value for the awakening of moral feelings in these young hearts—they have also quite another significance. There is a deeper cause for the pleasure the child takes in this immediate communion with nature, in identifying himself with animals and flowers. I quote from the study of Profs. Hall and Allin on "The Psychology of Tickling, Laughing, and of the Comic" (American Journal of Psychology IX., 1) as follows to illustrates this point: "The antics of animals are a source of great amusement to children. They pull down the corners of the eyes and pull the mouth open, put their hands to their ears, crawl like snakes, root like pigs, fly like birds, swim like fish, catch and devour prey, make faces, wear animal masks, form shadow pictures, watch animals and laugh at and perhaps imitate their every movement, personate trick animals. . . . Some children desired to be, and others thought they were becoming some favorite animal. They play that they have claws, trunks, tails, tusks, big teeth and eyes, drink or sleep, walk, play, like animals. Games that involve catching or grabbing are often very mimetic of animals, and are always hilarious. The element of suddenness, too, often intensifies this factor. The wearing of animal masks of great variety has always been a source of great pleasure for children, and even plays a very important part in the games and ceremonials of the Chinese, most European folk-lore and amusements, in mediaeval revels, and in savage dances. Pinning on tales, ears, horns, feathers, mane, wings, going on all fours, enacting the animal poses that have come down to us from the middle ages and from remote antiquity, with the aid of these accoutrements suggest . . . that children must approximate the animal consciousness by these devices. On the other hand, the long struggle of man with the other animals for survival and supremacy, the history of domestication, the folk-lore and religion of totemism show us what a role animals have played in human fear, reverence, and even love in the past."

This reflection shows that *the child of kindergarten age represents a particular stage in mental development,* one which cannot be immediately compared with the adult stage, but which, broadly speaking, corresponds to an epoch in the history of civilization when our race was yet just beginning to be humanized, i. e. differentiated from the lower creation. The kindergarten child exhibits the instincts and faculties characteristic of the dawn of civilization. He is, so to speak, yet half way between animal and man, or if you will, in his mental disposition savage-like, which does not necessarily mean that he is savagely vicious. We must use the term savage without reproach—merely to indicate an undeveloped state of mind. There will be further occasion, in later chapters of this volume, to dwell on this point, which is fundamental in an intelligent dealing with children.

It is due to the kindergarten that this condition has been recognized in the work of the school, at least as far as the pre-elementary child is concerned. This alone is a far-reaching reform. It is thru the kindergarten that we have been awakened to a sense of the tremendous opportunities which are offered to the educator in these tender years of the child which previously were regarded as more or less useless, so that parents and teachers co-operated to abbreviate them as much as possible and to drive the child headlong towards precocious development. Now we know that these are the most precious years in the life of the child, and that upon their successful turning to account depends the future health and maturity of body and mind.

It is instructive to read what former Indian Commissioner Jones said in one of his reports: "It is sometimes stated in the public prints and by those who should be better informed, that the present method of educating the Indian is a failure, because, as set forth, the pupils after receiving the advantages of a government schooling, and living for years in its moral associations, return home and take up the blanket and breech clout, and relapse into the customs and manners of their parents. This is true in some cases, but on the other hand, many of these children enter into agricultural pursuits and take up trades, and become an important adjunct in the work of civilizing their brethren.

"The hope of the Indian race lies in taking the child at the tender age of 4 or 5 years, before the trend of his mind becomes fixed in ancient moulds or bent by whims of his parents, and guiding it into the proper channel. Children who have thus early been placed under the influence of the school show a percentage of success equal to, or greater than that which attends the public schools of any great nation of the world which draws its material from the slums. A greater percentage of the latter sink back into the degradation of their parents and revert to the life from which they were taken, than do the Indian boys and girls who have received proper training in the Indian schools".

There is another aspect of this evolution of the child from the savage state to one of maturity. By the undeveloped mind, the relation of cause and effect is but dimly recognized. *Imaginary* causes are substituted for *real* causes, and a mere semblance becomes the symbol of reality. Thus the kindergarten child lives in a symbolical world where everything has strange meanings and may be converted, in a moment, into some other thing, or be endowed with mysterious powers.

An application of this fact of evolution may be made, briefly, upon the *religious training* of the young child. It has become customary in many places to make the kindergarten contributary to the Sunday school as it were, by trying to inculcate the lofty ideals of a refined religion in the young soul. If we remember that the kindergarten child has practically the instincts and the reasoning power of a barbarian, that he is steeped in nature worship, animalism, and fetichism, we shall realize that these attempts must necessarily end disastrously and produce, instead of a wholesome sense of reverence, rather a grotesque caricature of religion. Particularly, such ideas as the omnipresence, omnipotence, and omniscience of God are far beyond the grasp of young children. Many instructive investigations have been made in this direction years ago. (Cf. Sully, "The Child's Religious Ideas and Religious Teaching", Pop. Science Monthly, Jan., 1895.—Barnes, "Theological Life of a California Child," Pedagogical Seminary, Dec., 1893.—"Notes on the Theological Development of a Child," Arena, Feb., 1898, Crisman.—"Religious Periods in Child Growth", Educ. Review, June, 1898, and many others.) Here is a little story which may be considered significant: A little Pennsylvanian was sitting on the floor playing with his blocks. Presently he looked up at his mother and asked: "Ma, can God see everything?" "Everything, Harry." He returned to his blocks again, but evidently did not drop the subject from his thoughts for he soon asked: "Can he see the back of his own neck?" (Reported in the Child Study Monthly.)

Can it be assumed that conceptions and reasonings such as this are conducive to genuine religiosity?

There are other fundamental principles of early education which have received their first comprehensive and systematic recognition in and thru the kindergarten.

There is *music* which does not only add so much to the cheerfulness of the kindergarten, but which, in its rhythmical movement, corresponds to a deep-rooted want of the youthful soul and body. Life is in its very essence rhythmical, and whatever chimes with this rhythm or stimulates it, will necessarily enhance the sense of life, its vigor, and functional intensity. And by way of the sweet strain of song, the beauty of harmony and measure is awakened in the child, his soul is being uplifted to nobler aspirations, his activity is developed to be a power for good—to let him be a builder of ideals. Music's effect upon the child—as well as upon grown men and women—is truly magical, and is being more and more recognized as an educational force.

And then there is the *story*. The child, as well as primitive man, revels in stories which appeal to his imagination and stimulate thought and action. In the myths and fairy tales, the child is initiated to a primitive world conception which is as typical and simple, as it is grand and poetic, and which corresponds closely to his own understanding of the forces manifesting themselves to his experience. This is perhaps a safer way toward the awakening of true religious feelings than attempting to cast their immature minds at once in the modern religious mould.

Further, there is little that appeals more to the child than genuine poetry—not made up rhymes and ditties so much as genuine poetry, such as is eternal, typical, great, coming from master minds of our race, whose intuitive understanding of the fundamental truths and cravings have enabled them to touch adult and babe alike with the divine spark. And again, poetry that is epic rather than reflective, that deals with doings rather than with sentiments. For the child is supremely interested in action and has very little patience or understanding for fine emotions. He may feel them but he cannot analyze them or reflect upon them. Poetical form also satisfies the rhythmic tendency and lends itself gracefully to musical treatment. Music was perhaps the first art of our race, and poetry its first literature.

The kindergarten age is the *language-making age* of the child's life. He learns language readily by imitation, by absorption, by instinct. This age repeats the epoch in the history of man when he emerged from primitive barbarism and made civilization possible by the creation of speech. It is a pity that the language-making instinct of the young child is as yet utilized to so small an extent. In the kindergarten the child could easily acquire oral facility in speaking one or several languages in addition to his mother tongue, as is practically illustrated in some foreign countries. Even if this training were not followed up in the succeeding grades, various beneficiary results can be obtained in this manner. The speech centers of the child would receive a most helpful stimulus for variegated and more comprehensive development such as cannot be got from the one-sided experience of the mother tongue only. And what was once gained will never be entirely lost. Whenever the child should later take up anew a foreign language, there will be deep down in the recesses of his brain latent associations which will awaken under the new impulses and the child will profit from the stimulus applied to the language-making faculty at its budding time.

Further, there is a methodical element of vital importance which has first been recognized and organically developed in the kindergarten. I mean the principle of co-ordination, whose significance for the rational organization of the course of instruction will be discussed in another chapter. In the kindergarten all the work is related, articulated, organized. The aim is, to produce so far as possible a conceptual whole in the mind of the child. Thus there is a central thought selected, e. g., the idea of shelter, or of home life, or of food, or of protection, around which all the activities of the children are grouped, and which is also illustrated by story, song and game. Unfortunately, (or fortunately?) the child's mind is not capable of relating *everything* to a central thought, as it lacks the faculty of abstraction, and the child's thinking and conceiving are fragmentary, touching the external world at many different and often wholly unrelated points. To restrict him to such things only as fit in with the "center of thought" as conceived by the adult, means a narrowing down of his circle of experience to meet the requirements of an abstract theory, without gaining anything on the side of depth, or intensity. There is no harm in letting the child pick up his information and experience at random; there is a whole life before him when he may convert the loose threads into a skilful fabric, and work out a unification of his concepts. To do that completely is the criterion of the master's mind, and few, if any, attain to this glory. The principle of co-ordination has frequently been carried to extremes. Even one of our foremost representatives of the kindergarten movement, Miss Susan E. Blow, as early as in the year 1898, "objected" to the practice more or less prevalent of making the gift exercises illustrate some selected idea—or "center of thought" for the week or month, such as the Flower-casket, the Carpenter, or Hiawatha, and "requiring each child to repeat the same illustration," to the entire sacrifice of Fröbel's idea of self-expression.

Here for the first time we have touched upon a point where the prevailing practice of the kindergarten seems to be in need of revision. Indeed the kindergartner has never been free from criticism, more or less intelligent and fair, but often pertinent, and it is well to consider a few of these in order to arrive at a clearer understanding of what may be done towards developing the kindergarten idea in a rational manner.

No time need be wasted on discussing the ignorant criticism that the kindergarten is merely a play-school, by which is meant that it has no value at all. But more weight must be attached to the contention that the kindergarten usurps the functions of the home, and that children of that age belong properly to the family. It cannot be denied that much of Fröbel's teachings have no reference at all to a school-like kindergarten such as we are accustomed to call by this name, but to the early educationary efforts of the mother in the home. Thus, the ingeniously beautiful "Mutter-und-Koselieder" are not intended for the kindergarten pupil, as their very name signifies, but as a help towards the proper training of the youngest babes. Much of the material suggested for an earlier stage has indeed been usurped by the kindergarten, tho surely in a well-intentioned way, and because it was in reality not used in the family at all; just as primary classes will not infrequently make use of kindergarten material tho this is not at all suited, in the nature of things, to the next higher stage of the child's development.

We may even maintain, with some degree of justice, that the proper application of the kindergarten methods would seem to make a grouping of a relatively few children together, in the home circle, if you please, or by the co-operation of a few families standing in friendly relations towards one another, preferable to a massing and mixing of large numbers. In this respect, certain modifications of the present practice may eventually commend themselves to us. But surely, there is a place for the kindergarten as such, as a connecting link between the home and what is called the school proper. Small groups, especially such as are based upon the family circle, foster one-sidedness and exclusiveness, and even young children need the friction afforded by larger company and competition. On the other side, in the practice of the best kindergartens much has already been done to break up the unwieldy mass of children into well-matched groups of manageable size.

The more noteworthy criticisms refer to the routine of the kindergarten itself. Its very perfection and detailed organization have caused it to become more formal and rigid than is consistent with wholesome growth. There is a certain dogmatism about it all, and the gifts and occupations no more than the games and songs have become more and more stereotyped. This is utterly averse to the spirit of

Fröbel, whose main appeal was for natural growth. If he suggested a certain series of exercises and embodied his thought in certain forms, it was because these were at the time the method most suitable, in his estimation, to express his ideas. But his experience was limited, and his psychology but rudimentary. His great principles remain essentially unchanged and will forever guide us; the form in which he attempted to embody them, the manner in which he applied them in his practice, are necessarily transitory. Those kindergartners who have, in their admiration for the permanent glory of the new gospel of the kindergarten, elevated its form in all its details into a dogma, have become slaves of the letter and have lost the spirit.

The stereotyped character of the present kindergarten practice as found in many places has worked against the natural instincts of the children, the very ones it was intended to foster.

Very severely expressed was the judgment of the well-known Italian educationist Guiseppe Sergi, who said in his book "Education ed Instruzione" (reviewed in "Pedag. Seminary," II., 437): "It seems to me that this (Fröbelian) method when it is a question of teaching things and of giving ideas of things, is false, because in reality real things are not presented before the children for them to know, but figures of things; in other words, *simulation is substituted for reality,* figures and semblance of things are substituted for real things,—natural and artificial, or, in more general terms, the abstract for the concrete. I call simulation those artifices which are wont to be made with the hands and with objects to represent natural things, e. g., animals, or artificial things, e. g., a temple, a house, etc., by means of sticks and bits of wood combined when the children ought to be shown the real things, in order that they may begin to have exact ideas of these—Suggestion in education has its limits. At an age when mental activity is in process of development, certain procedures may have grave and dangerous results—the brain continually waiting for new suggestions after the first, may be arrested and remain in habitual inertia . . . the result of hindering proper functional development. The Fröbelian method is weighed down by these defects, for, while seemingly desiring to allow liberty and independence of mental activity in children, in reality it suppresses them. In the use of games and plays suggested or made by the instructors, and of which the children are merely the automatic executors, the same method of suggestion continues, which ruins the natural development of the children, tends to equalize them all and to abolish all initiative and individuality— Thruout Fröbelianism there is the *symbol* which destroys methodical and natural development. . . . Instead of its being said that the activity of the children is manifested in plays, as Fröbel declared, we ought to say rather, that marionettism and refined automatism destroy the spontaneous activity of the children."

This scathing denunciation of the kindergarten has been quoted not because it is considered a just criticism of Fröbel's system, but because it shows how a vicious and unenlightened practice, represented by those who undertake to introduce a new idea while being themselves steeped in the old, will turn reformatory measures into their very opposite. It seems plain that the kindergartens observed by Prof. Sergi had only Fröbel's letter, not his spirit.

As it often happens, the disciples of a great teacher overdo what they conceive to be his teachings, and are apt to carry his system to extremes. This is surely true of Fröbel's gifts to which a sentimental and overstrained philosophy has attributed many more secret and mysterious virtues than Fröbel himself may have dared to dream of. Educationally questionable as his *mathematical* type-forms may appear to the unbiased mind, they have not escaped this overstraining process.

There seems to have been a stage in the artistic development of many peoples, when the mind conceived of life forms in mathematical, or specifically geometrical, symbols. The decorative motives of primitive tribes, picture writing, animal mounds, etc., give ample proof of this. Similarly there may be a tendency among young children to image in geometrical symbols. The fact is that many children delight in recognizing life forms which are presented to them in geometrical disguise. Yet the question is whether they can be expected to create their own mathematical symbols, or whether it is advisable to force the symbolism of the gifts so extensively upon them. The primitive artistic creations mentioned above were apparently due to the first awakening, in the mental evolution of the race, to appreciation of form as such, of symmetry, and of geometrical relations. Geometry was the first of the exact sciences to be systematized by the ancients. But after all, the parallelism between the evolution of the race and that of the individual can not be carried so far as to make us overlook that primitive artists were, after all, adults living in primitive environment, while our children are modern human beings, children tho they be. Mathematical form is surely an abstraction probably beyond the comprehension of the young child. Besides some of the apparently geometrical symbols of primitive art may not have been conceived as such by their creators, but were simply the result of immature skill, while we moderns, with our mathematically trained eyes, imagine to recognize mathematical conceptions.

While it is certainly true that the kindergarten child lives in the symbolic stage, it is open to doubt whether the mathematical symbolism as represented by the sphere, cube, and cylinder, has much value in early education.

Just as the stereotyped gifts are open to criticism as long as they are claimed to be the only, or the best suited means for the development of the young soul, the character of the occupations has also been exposed to severe censure. Some of these strictures are excessive and unjust.

Yet there is much justification in the demand for a revision of the occupations as generally practiced. President G. Stanley Hall finds that much of the work done in the kindergarten is not at all suited to the nature of the little child, referring particularly to paper weaving with narrow paper strips, pricking, bead work, stick laying with tooth picks, and in general all occupations with small articles. Experiments have brought out the fact that a large proportion of the kindergarten pupils had neurotic diseases brought on and developed by this kind of work. In "A Preliminary Study of Motor Ability", in Pedag. Semin., III., I., John H.

Hancock recorded some instructive tests which were undertaken to examine into the children's ability to do the regulation work of the kindergarten. A pattern found in most kindergarten guides consists of four slats interlaced. This was taken for a test, using slats 8 inches long and ½ inch wide. Four were taken and interlaced before the children, and left so for them to see; four others were then given to each child and the children were asked to interlace them. The slats were interlaced a second or even a third time before the children, yet but one child, a girl of six, succeeded; nine copied the figure, the remaining fifty failed wholly. The ages ranged from 5 to 7. "I am not at present concerned," says the experimenter, "with the effect of training on the ability of children to make these movements, but rather with the problem, what is the period of development of function in the nerve centers controlling the finer muscles concerned in delicate co-ordinations. Evidently for these children it is only beginning. Fifty-six boys were asked to thread a large needle; fifty succeeded, but only after two or three efforts; six failed, tho given extra large needles and more time. It was evidently new to most of them. After the first trial there was in many cases apparent a feeling of nervousness".

Of course there is a reason for these effects. This reason is to be found in the natural order of development of control and co-ordination of movement in the child. This order is quite generally disregarded in the ordinary practice of the kindergarten owing to the mistaken idea that little children must do little things. The fact is that little children will do *crude* things, and that their scale must be comparatively large. To insist upon accurate adjustments will necessarily result in failure, or in injury to the child. On the whole, the child's development does not follow what we may call a logical order, but it complies with the laws of growth, which are biological, not logical. Says Mr. Hancock:

"The order of development of control is evidently, body, shoulder, arm, forearm, and hand. In the hand control the index finger differentiates between that of the others. . . . . Kindergarten work is usually too fine. Too great precision, involving delicate and complex co-ordinations in pasting, weaving, folding, pricking and sewing is insisted on. Occupations and games for young children should be of a nature that will involve large muscles and movements."

And F. Burk, in his valuable study, "The Development of the Nervous System" (Pedag. Semin. VI., 1) has this to say:

"If infants first learned to make the simple reflexes, and this step performed, they proceeded to combine these elements into new unities and so on, we would have a logical order to retrace. But there are few evidences either in infancy or in later childhood of such steps from the logically simple to the complex. . . . Several other hand movements could be more or less definitely traced, commencing in the infant with complex reflexes, inexplicable as yet upon any theory except that of evolutionary origin and developing into human forms by modifications and additions that show no trace of logical arrangement. . . .Nor do all these complex but original co-ordinations appear immediately at birth. They are scattered along thru infancy and childhood suggestively corresponding to the development by distinct parts observed in the growth of the nervous system. . . .

"We may sum up the matter of accuracy: (1) that as a primary condition which makes accuracy of hand and arm possible, the child must have a matured degree of control under directions of his higher level centers (i. e. voluntary). The fact that this maturity is not reached, normally, until the ninth or tenth year, makes questionable the efforts of the school to compel accuracy such as is required by the kindergarten, and also by the primary school in writing, weaving, etc. (2) That the ability to be accurate in hand and finger movements increases very materially during school ages. (3) That accuracy depends indirectly upon the development of the body as a whole, the steadiness of the trunk muscles being as essential as the accuracy of hand or finger movements themselves. . . . (4) That steadiness of the trunk or central movements (fundamental) necessarily precede ability to be accurate in peripheral (or accessory) movements". . . . (It should be stated in fairness to progressive kindergartners that much has already been done in the best kindergartens of this country to effect a rational modification of the existing practice.)

There is then to be a new adjustment of Fröbel's thought to the needs and conditions of the child as revealed by the later researches into child nature. The laws of growth must be the governing laws in our dealings with the children, and the kindergarten itself must reflect these laws in its own constitution by liberating itself from dogmatism, so as to breathe anew the air of freedom wherein alone there is healthy development. Let us cast Fröbel's immortal thoughts into new and nobler forms, such as will never again become rigid and stereotyped, but will change and expand and mature as our own conceptions of child-life change and expand and mature. The very words of Fröbel will inspire and guide us herein. Says he: "The fall from childhood's paradise begins painfully early in these modern times. . . . By forcing the child out of his unconsciousness, by demanding of him reflection, by checking the joy of his receptiveness, by too much teaching, we spoil the divine teaching of God and Nature. . . . Let the child remain for a time ignorant of himself, live naturally, and drink in his wisdom and his religion which God makes play around him. Make the bridge from the cradle to manhood just as long as you can, leaving the child as a child as long as possible, not forcing him into premature development by intelligence or by anything else. Let him be a child and not a little ape or a man running about town."

And it is well to understand that in the Kindergarten age no less than in other ages, the individual condition and need of a child must be the first consideration. What is best for one child may be injurious for another. Says Dr. Isaac A. Abt, a specialist in children's diseases, in a recent article: (An Inquiry into the Status of the Kindergarten. Archives of Pediatrics, April, 1909.) "In the final analysis we are forced to the conclusion as indeed one cannot fail to have been thruout the discussion, that each child must be considered as an individual. In other words, the desirability of the kindergarten depends upon the state of health of the child, the qualifications of the teacher, the disposition and capacity of the mother, the environment of the home and the equipment of the kindergarten."

As a closing thought to this, the following consideration is suggested. The kindergarten, as was affirmed in the beginning, has its value not only in administering to the peculiar needs of the children of a certain age, but mainly in establishing a better recognition of the meaning of education generally. The principles evolved and practiced in the kindergarten are fundamental principles and must be understood as regulating all our educative efforts, thruout all the "grades" of the school no less than in the home. The ideas of objective work, of constructive activity, of "Learning by Doing", of sense training, of interrelation and co-ordination of the elements of instruction, of following the natural steps in the gradual unfolding of the child's soul and body, etc., etc., must pervade the entire curriculum. In others words, it is the mission of the kindergarten to leaven the whole lump of school education by the same principles which gave it birth; to emphasize the necessity of erecting the entire educational superstructure on the kindergarten foundations; and while varying the methods employed according to the ages of the children, to apply thruout the fundamental thoughts of Fröbel. Thus the kindergarten will be but the basement story, as it were, of a larger structure devoted in its entirety to the New Education. It must no longer be a separate branch of school instruction, distinctly different from the rest, and patched onto the routine system—in an external, superficial manner—but it must set the pace, it must point to the goal, it must lead the way to better things. It should teach us how to discover the child wherever he is, whether in the primary classes or in the high school. It should expand so as to embrace the entire school, and absorb the whole system within itself, converting it into one large KINDERGARTEN.

CHAPTER III

The Principle of Co-ordination of Studies

THE term "co-ordination of studies" has been frequently used to designate an educational principle which has reference to a systematic unification of all instructional elements in the school curriculum. We owe the suggestion of this principle mainly to the advocates of the educational philosophy of the great German thinker, Friedrich Herbart. Herbart, however, only laid the psychological foundation of what is now known in educational history as the "scientific pedagogy"; it was due to such men as Ziller and Stoy that the new movement mapped out a practical system of school education. Tuiscon Ziller and his followers based their system and course of instruction on a "central idea". This central idea was pre-eminently an ethical one. The development of the moral and religious character of the pupil was, with them, the principal aim of education. In their endeavor to group all the different studies around this central idea, they advanced the theory that the child passes, in rapid succession, thru a series of mental stages which represent, in an abbreviated form, the various epochs in the evolution of the race.

It is a well-known biological law, in accordance with the theory of evolution, that the physical development of each living being is a repetition, or epitome, of all stages of development thru which the entire series of its ancestors has passed, so that the differential characteristics of the species to which the creature belongs, will develop last. The mental development is thought to be good and by the same law.

In the following chapters more will be said about the latest conception of this "culture epoch theory", which has also been confronted with much adverse criticism. Many, or most, of the author's own suggestions will be based upon a revised form of this principle.

With their "central ethical idea" in view, and considering that this race development is recorded in such studies as Biblical and secular history, in literature, language, etc., the educationists of the Herbart-Ziller school grouped their entire course of instruction around these literary records and the thoughts suggested by them, disfranchising, as it were, all other studies by making them subservient to this principal end. The leading studies, therefore, which supply the effective principle of co-ordination, are the humanistic branches: history, literature, dogmatic religion, and language, which form the central group. Such studies as geography and natural science, even arithmetic, are grouped around these so that they progress in close connection with, and principally directed by, the religio--ethico-historical group. This is what Ziller called "concentration of instruction."

Much might be said by way of criticism of this concentration scheme of the Herbartians which represents an erroneous application of some very sound educational and philosophical principles. It may suffice here to refer briefly to the artificiality of a plan which selects certain branches as primary to which all others are forcibly subordinated. To constrain the entire subject-matter of school instruction, geography, natural history, reading, writing, etc., into an unnatural dependence on ethico-historical topics which are supposed to represent eight different culture periods and as many different epochs in the child's development, or school grades, is mere pedantry. Each subject of instruction has, to some extent, an independent province, with laws, aims, and an individual life and organization of its own which must be respected.

The terms *"correlation"*, *"interrelation"*, *"co-ordination"*, and *"concentration"* have been used somewhat indiscriminately and interchangeably by educationists. Some apply the term "correlation" as a collective, or general, term, and then distinguish "concentration", in the Herbartian sense, as meaning a subordination of all other branches to the so-called culture studies; "co-ordination", as meaning the arrangement of all studies in a series of separate but co-ordinate groups which have each an independent value, but are not only correlated with one another so as to produce a unity of conception, but are each so organized that in each a central idea controls all the elements therein included. Thus, Dr. Harris, one of the earliest and most devoted Herbartians, recognized five co-ordinate groups: (1) mathematics; (2) geography (as the elementary form of science); (3) literature; (4) grammar and language; (5) history.

It is interesting to note, however, that even Dr. Harris' mind was haunted by the idea of concentration pure and simple. True, he spoke of "unity" in an article in which he explained his contribution to the once famous Report of the Committee of Fifteen: "The report finds a deep underlying unity, and affirms the necessity of approaching this unity at all points of the course of study, but without the hope of reaching the fundamental unity until the period of higher education." But elsewhere, he had arrived at this surprising conclusion: "The whole elementary course may be described as an extension of the process of learning the art of reading"! It is evident from this sentence that Dr. Harris had a very inadequate conception of the objective and motor elements of education, at that time, at least.

The third term frequently suggested, "interrelation", has been used to denote a system which places the different branches of instruction in mutual relation without attempting to organize them in groups or to subordinate any of them to so-called centers. Much discussion has been going on as to which of these plans is best. But there is not necessarily an antagonism between the different plans. They have all their values at different stages of the educational and instructional practice if we allow the evolutionary stages of the *child* to guide us in organizing the instructional elements. Of this, more will be said in later chapters of this book.

The term "co-ordination" seems to commend itself as preferable, in a general sense, because it recognizes, as has been shown, the independence of the different branches, each in its own sphere; and while it allows of the grouping of studies in co-ordinated and correlated clusters, this grouping may be varied to suit different and successive needs as they may manifest themselves in the gradual unfolding of the child's mind. The term "co-ordination" does not imply the subordination of any study to any other, but permits us to conceive of all individual branches as co-ordinate elements, if this conception should at any time suggest itself. Thus, while it denotes the connection and interrelation of all, it also grants freedom to each.

But before entering further into a discussion of the principles of co-ordination as the author understands them, a few preliminary remarks seem pertinent.

Co-ordination, as ordinarily understood, is based principally upon the real or assumed relationship of the *subjects of instruction*. This relationship may, of course, be very differently apprehended by different persons, in accordance with their individual idiosyncrasies. Everybody, e. g., will appreciate the relation and interdependence of arithmetic, algebra, and geometry; or of history and geography. But whether the one or the other is to figure as the primary, or the secondary, study—as to which one must be considered the leading and which the subservient and accessory discipline, is a matter of individual preference and attitude. Even the relative value of the different branches, or groups, is variously estimated. There are not a few who maintain that language and arithmetic are but form studies whose only function is to serve as tools for the acquisition and expression of the thought as contained in the "content studies" such as geography, history, literature, science, etc. Again, some place language and arithmetic in the front rank, as being pre-eminently educational, and to whose proper cultivation the other studies merely furnish the material.

It is certainly advantageous, in surveying the many different branches of instruction, to group them in an organically connected and articulated system, and were it but for the purpose of penetrating into their mutual relations and of learning to conceive of them as parts of a great whole which may be differently denominated as Knowledge, or Culture, or Civilization. The final aim of such efforts is the unification of all branches in a philosophic order or theory which is practically identical with a conception of the World as an organism, or a divine creation, or whatever you will, wherein all forces and elements combine to further certain, more or less clearly recognized or recognizable ends.

Evidently useful and necessary as such unification must be, and even tho we should awaken in each pupil the desire, and strengthen the faculty, to correlate all culture elements, so as to build up a unified world-conception of his own—this process is absolutely dependent upon the individual point of view, or the individual mental attitude and aptitude of the thinker himself. It appears educationally doubtful to force any such individual viewpoint upon any child, or school, or school system. We ought rather to help each child to find his own point of view among the multitude of possible attitudes, even tho his may materially differ from our own. For this reason, any co-ordination of studies which is based exclusively and rigidly upon our conception of their interrelation as branches of a philosophic unity, disregards the CHILD as an organizing center and agent. It is, at best, a logical or theoretical co-ordination, but not one which is adequate to respond to the needs of the child.

For the sake of convenience we may group all subjects under some definite heads, or collective centers, such as, e. g., (1) *ENVIRONMENT*, which would be a different name for geography, ethnography, and would include nature study, even mathematics, this latter study being based upon measurement, and establishing the science of relations; and (2) *HISTORY*, which would refer to all the experiences of the race, and would therefore embrace language and literature and art. Accepting these two centers, manual and art training would assume the function of methodical elements thru whose agency the forces of nature and the civilization of man would be better comprehended; while music, perhaps, would in one sense be accessory to

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literature, in another to physical training.

Again, there is the division of subjects into *form-studies* and *content-studies,* as has been mentioned before. Then we may divide them into such as develop the mind *intellectually;* others, whose function is the *moral training* of the young hearts to the acceptance and assimilation of noble ideals; and thirdly those which have the *normal development of the body* for their prime object. Mathematics may be placed in the first group; literature in the second, and gymnastics in the third. There are many other ways of grouping the subjects —all more or less helpful and convenient in the working out of a course of study, but none of them fully satisfactory and solving all difficulties. There will have to be cross-references everywhere.

The principal danger in working out plans of this sort consists in this that there will be an ever-present temptation to seek and establish artificial centers such as recommend themselves to the philosophizing mind of the adult while they may be foreign to the thought and interest of the child. Thus, where the story of Robinson Crusoe has been made the center of the work of a certain grade, all the exercises of that grade will for the time being be made to refer exclusively to that interesting figure until the child loathes to hear of him. The kindergarten, as has been shown in the previous chapter, has especially suffered from this conception of co-ordination. In the sequence of weekly themes which cover such subjects as home-life, shelter, food, covering, Thanksgiving, Christmas, winter, the resurrection of the flowers and the like, it has been customary to correlate all work of the week so as to have a bearing upon the "theme". Amusing and grotesque examples of the absurd things that have been done in consequence of this attempt to force everything into the straightjacket of the "theme" might be quoted. In fact, kindergartners have sometimes refused to adopt certain lines of work into their course for the only reason that they did not know how to "co-ordinate" them with their weekly themes. Here is the rhyme-bound groan of a teacher whose supervisors insisted on this sort of artificial correlation:

With back that was aching and tired
  And brain in a pitiful state,
A teacher sat at a laden desk
  Attempting to correlate:—

Cocoons and Indian chiefs,
  And the length of Agoonac's hose;
The cubic root of the Nation's debt,
  Turtles and niggertoes;

Earth and water and air,
  Elephants, adverbs and cheese,
Box-elder trees and the pyramids,
  With the cause of the ocean breeze.

Oh, but to teach again
  As once I used to teach
Before I heard of "unify"
  Or "pedagogic speech";

Only for one short hour
  To think as once I thought—
That schools were made for the children
  And lessons to be taught.

Oh, to be at rest
  Under the violets blue,
Where "daily outlines" never come
  And reports are never due.

Cocoons and Indian chiefs,
  Presidents, camels and seas,
Olympic games and glacier beds,
  Pronouns and bumble-bees.
(School Education.)

We may not, perhaps, agree with all her longings, but we can surely sympathize with her perplexity and distress. We shall see presently that it is well to establish associations in the mind of the child; yet we need not fear that at random—impressions will get lost. Something must be left to the spontaneous associative ability of the child. It is an idle attempt to pre-digest everything for him. We can trust in his natural ability to assimilate the wealth of excitations and sensations rushing to him from all sides, in his own individual way. The child is unable to control and organize all these perceptions at once, and we, on the other hand, shall find it to be far beyond our power to control, or even to be aware of, this enormous mass of sense-impressions and stimulations of thought. The child stores up this treasure in his brain without the possibility of immediate correlation; his thinking is necessarily fragmentary. This need cause no anxiety, for the process of organizing these impressions is long, but sure, if otherwise care be taken to establish *rational habits of thought*. This process of organization is commensurate to the child's process of *maturing*, and is governed by the eternal laws of mental activity. In other words, the loose threads will be occasionally gathered up and gradually woven into a conceptual fabric characteristic of the individual mind.

We must look for leading principles of true co-ordination not so much in the interdependence of the subject matter of instruction as such, but rather in the *psychological laws* which govern the working of the juvenile mind, and of mind generally. The interdependence of the instructional details of the subject matter will assist us in the practical work of the schoolroom, to establish *psychological relations;* but the *principles of arrangement* must be derived from the psychological conditions themselves. That is to say, the logical relations of the branches of instruction are *external facts,* and can become *internalized,* i. e., they can become modes of thought, or mental organisms, only thru a psychological process.

Were it not so there would never be cause of feeling aggrieved at observing how many minds there are to be found in which a great many external facts are stored up as so many pebbles in a bag—facts which are obviously related, *objectively* considered, but which have not become *subjectively* associated. The sad effect of this condition will become manifest in the general conduct of these individuals which will be characterized by pitiful inconsistency. Thus, a man who is a scientific genius may be discovered to be a bigot in matters of religion; or a kind-hearted man who is a loving father and husband, may be a veritable tyrant and egotist in his social intercourse, or in his relations to employees. Examples of such inconsistency may be multiplied—but they are all due to the fact that an objective relation of external facts is not always mirrored in the mind of man by a corresponding psychological organization which has produced a subjective reality, a mental attitude, a mode of thought.

It appears, then, that the real center of a co-ordinative system of instruction must be the CHILD. We are indebted to Herbart for a distinct formulation of the principle which governs the acquisition of knowledge by the learning child. The process by which the mind appropriates and assimilates knowledge is called *apperception*. Dr. Karl Lange, in his famous monograph on the subject, defines this process as follows:

"In general, we master the outer world thru our perceptions, and only thru them; yet in their very nature there lies at the same time an important limit for all knowing. Just because the perceiving mind does not passively receive external things or their images, because nothing foreign can press in upon it or be communicated immediately to it, but because it relates itself *actively* to all outer excitations and responds to them in its own way, therefore, in a strict sense, our perceptions have only relative truth and validity.

"This activity of the perceiving mind, however, explains another important fact. It is a well-known experience that one and the same object seldom occasions precisely similar perceptions in the minds of different people. Of the same landscape the poet's image would differ greatly from that of the botanist, the painter's from that of the geologist or the farmer, the stranger's from that of him who calls it home. . . . There are as many ideas of one and the same thing as there are observers. Whence this variation in apprehension, with otherwise similar sense apparatus? . . . The mind apprehends the things of the outer world with the assistance of what it has already experienced, felt, learned and digested. And so it comes about that with nearly all new perceptions the former content of our mind makes itself felt, so that we become conscious of more than that which the objects themselves furnish us, seeing the latter thruout in the light of similar ideas already present in the mind.

"The process of perception must not therefore be regarded as such a simple matter as superficial observation might seem to indicate. . . . In order that a sensation may arise, there is, as a rule, a fusion or union of its content with similar ideas and feelings. With the assistance of the latter, the sensation is held in consciousness, elevated into greater clearness, properly related to the remaining fields of thought, and so truly assimilated. We call this second act, in distinction from that of simple perception or the reception of a sensation, APPERCEPTION, or mental assimilation."

This same fact has often been expressed as a principle of method, in the form of maxims, such as: "From the known to the unknown", or, with another element added to it: "From the easy to the difficult,"—"From the simple to the complex",—"From the concrete to the abstract." It is evident that the logical relation of the details of the subject matter will enable us to make the application of this general rule a comparatively easy thing. In this manner we shall establish an instructional interrelation of topics—introducing new ones by establishing apperceptive associations with those which existed before. In order to accomplish this effectively, teachers will have to ascertain the mental status of the children entrusted to their care, the extent and character of the concepts already forming their intellectual possessions and determining their emotional attitude; and there are other factors to be observed, as the reaction time, inhibition power, fatigue limit, and the like, of individual children, and other things.

It is clear that the concepts gained in one branch of study, or thru one kind of activity, will condition and re-enforce concepts which are to be mediated thru others. Thus, historical and geographical elements will prove mutually helpful; arithmetical concepts will attain greater distinction by geometrical methods of instruction; laboratory practice will form a basis for true scientific ideas; the *making* of objects will complete their conceptual images; and animistic myths will prove themselves a fit introduction to science proper.

A relation of new matter, by way of concrete examples, of examples which refer back to the child's previous experience, to an *"apperceptive basis"*, is especially mandatory in the case of elements which are remote from the senses, or foreign to the immediate environment and experience of the child. Here, teachers frequently make the mistake of neglecting the apperceptive process, taking it for granted that children can as easily jump from one concept to another as adults, with their much wider range of experiences and associations, may be expected to do.

It is often amusing as well as instructive to observe how easily children are tempted, by the narrow circle of their experience, to make false analogies, that is to connect new impressions with the wrong apperceptive group. In reading about the triumphal entrance of Columbus, with King Ferdinand and Queen Isabella, of Spain, after his first voyage to America, a certain class of children was much interested in the "royal mantle" which the king wore. When asked what that was, a bright little girl answered, "A kind of light." She had confused the royal garment with a Welsbach mantle, the only kind of a "mantle" she had ever heard of. A king in a Welsbach mantle would have been an interesting spectacle indeed.

By interrelating subjects so as to respond to the demand of apperceptive procedure, we need in no wise destroy their individual independence. So far, indeed, there is no suggestion of an absolute unification at any stage, or of the subordination of any one subject to any other. They must be made mutually helpful; and it is a principle of economy in evolution to relate details to common groups, or principles, so as to enable the child to establish a conceptual order in the wilderness and embarrassing multitude of details so that he may recognize old friends in new settings or dress. Unless this be accomplished, he may have to learn anew about the same geometrical form in the workshop which had become familiar to him as an element of his mathematical study; or he will not recognize in the construction of a stove an application of the same laws which he had studied in his physical laboratory as governing the radiation and distribution of heat.

But this apperceptive relation once established, it is well to rigidly isolate the details in the daily lesson so that there may be concentration of attention upon the object or subject in hand. Without such isolation and specialization, a clear understanding of the individual subject as such will be just as impossible as it would be thru neglect of the apperceptive helps. Each detail has its individual importance, and even its correlative significance will lack definiteness if we allow it to be constantly mixed up with more or less hazy associations.

The apperceptive process is based upon the *law of interest*. What has no relation to things we already know fails to appeal to our interest, and there will consequently be no effort on the part of the mind to seize upon the new object and assimilate it. Speaking of "native" and acquired interests", Prof. William James, in his "Talks to Teachers on Psychology", said:

"Other objects can artificially acquire an interest only thru first becoming associated with some of these natively interesting things. Begin with the line of his native interests, and offer him objects that have some immediate connection with these. . . . The interest, being shed along from point to point, finally suffuses the entire system of objects of thought. . . . This is the psychological meaning of that whole method of concentration in studies. . . . When the geography and English and history and arithmetic simultaneously make cross-references to one another, you get an interesting set of processes all along the line."

In this way, the immediate environment of a child, such as the idea of shelter, food, clothing, etc., may in fact furnish valuable centers of interest, thruout the grades, in all their various aspects, co-ordinating geography, science, manual work, mathematics, history. If these are recognized in the practice of the school, there is no objection to be raised, if they are treated in the elastic manner which has been suggested before.

The following principles may be pointed out, as apt to guide us in the correlative arrangement of the subject matter in a rational course of study:

The *Principle of Elimination* is suggested as the first of these. We must eliminate what is unessential, useless, and consequently burdensome. There can be no doubt whatever that the old practice of devoting the entire school time to a few subjects has created the unwholesome custom of dwelling too much on unnecessary and even positively harmful details. The abuses characterizing the spelling lessons are still fresh in the memory of teachers, and were it not for the fact that they are not yet wholly a thing of the past, and that there are many people clamoring even now for a return to the old methods, we should not need to emphasize once more that there is no advantage in drilling the pupils in the orthography of hundreds and thousands of words which they will possibly never use in their writing.

In a similar manner, much of what now constitutes the course in arithmetic, notably the greater part of the so-called practical, i. e., commercial examples, should be left out from the curriculum. All this ballast cannot be advantageously co-ordinated.

A second principle is that of *Direct Combination*. Mathematics, e. g., cannot claim a place on the school program as an abstract, isolated study. It should be largely "objectified", by being directly combined with the world of objects. Wherever accuracy in thought is demanded, there is mathematical material of some kind. The abundance of really *practical* problems that may be supplied by manual exercises in pasteboard, wood, iron-work and construction, sewing, by exercises in drawing, designing, and modeling, needs no explanation. Science lessons are especially fruitful in offering problems for mathematical consideration. In geography, the number of inhabitants and area of cities and countries; the length of rivers; absolute and relative elevation; distances, etc., may be measured and compared. The density of population; miles of railroads; kinds and percentage of products; import and export; postal, railroad and steamer service; the rising and setting of the sun; the relative size of the earth, continents, and oceans, etc., etc., afford an endless variety of exercises. Even history abounds with welcome opportunities. We may measure and compare the duration of institutions and historical conditions; the distance in time between important events; results of wars; taxes; feudal services and tributes; value of money at different periods and in different countries; cost and organization of communal and national governments; of public institutions, schools, prisons, police, etc. Beginning in the lowest grades, in fact in the kindergarten, approximately accurate numerical statements, growing more and more exact as the pupils increase in maturity, ought to accompany all form study, occupations and even games. Form study proper will lead up to the recognition of typical forms, thru direct observation, comparison and construction of solids; and in the highest grades, the abstract mathematical truths discovered may find expression in algebraic form, which, in turn, will enable the pupil to solve a number of problems of really practical value with greater ease and more understandingly.

In a like or similar manner other subjects will be combined or connected, e. g., geography with history and natural history; grammar with composition; spelling with reading, writing, and grammar, etc. Thus suggests another principle resulting from the necessity of readjustment, viz.:

The Principle of Variety in Practice. "Repetitio est mater studiorum." There is a need of a certain amount of drill and exercise in each branch of study for the sake of clarifying and intensifying the concepts, and of making them the indestructible property of the mind. Heretofore endless repetitions and reviews within the limits of each separate study were the rule; this required an undue amount of time and was extremely wearisome to both pupil and teacher. Besides, it amounted to little more than a mechanical re-iteration of a number of relatively meaningless separate facts. The wise teacher will realize that practice and exercise do not mean a mere going over the same ground again in endless succession, but rather the application of what has been learned in one way, in a different way, so that the lesson may be seen by the pupil in a new light, and assume the more attractiveness to him the more new sides and properties he discovers in it.

What can be practiced in the shop needs not be practiced over in the laboratory; what can be reviewed in a reading lesson will relieve history instruction of part of its burden. This is the age of the "supplementary" reader. Thus time can be gained all around and a number of "new" branches can be introduced for which there seemed no room on the program. And in the same measure in which such an arrangement, based on the principle of variety in practice, accords with the psychological laws of attention, interest and exercise, it serves to unify the instructional elements imparted to the child, by establishing relations and associations, and thus tends to bring about that harmony of conception which is the foundation of ethical culture.

Discussing the principles governing the psychological adjustment of concepts in mind, it becomes evident that the co-ordination of studies will have to be based mainly upon the

Principle of Objectivity which is apparently the most effective principle of co-ordination; and if any studies are to be selected to occupy an honorary place on a methodically arranged curriculum of the elementary school, we must look for those that embody this principle most efficiently. The child is constantly dealing with objects; objects stand foremost in his mind; his sense-perceptions pertain to objects on which he sharpens and trains his powers of apprehension and conception; which supply him with those concepts which are destined to form the groundwork of all his mental activity, and the material of his thoughts and reflections, the foundations even of his abstract reasoning, and on which certainly his interest concentrates.

As in the kindergarten, so in the entire elementary school course, all other studies will group themselves around objective work. This may be summed up under two different heads: (1) Nature studies, and (2) Manual work. This is practically in accord with Herbert Spencer's demand to assign to science the first place in school instruction, on the ground that it is the "knowledge which is of most worth." To distinguish manual work from the object lessons, or science work, is perhaps superfluous: for manual exercises may be considered merely as a *methodical device*. In them the principle of objectivity finds its most forcible application; they represent the experimental and constructive side of nature studies—for the word "nature" stands for the entire world of objects that appeal to the sense. There is hardly an essential difference between the production of a crystal, the construction of some piece of physical apparatus, the dissection of a fish, and the manufacture of a box, the making of a garment, or the preparation of a savory dish, as long as these exercises are conducted in an educational spirit. In the workshop the properties of matter are as practically studied as in the physical laboratory.

It is well to say in parenthesis that the principle of objectivity, as a principle of *method*, applies to *all* subjects of school instruction, even to those which appear to be the most remote from the senses.

When we connect theoretical instruction more or less directly with practical studies and work, and group its different branches concentrically, as it were, around the latter, a *system of associations* will be elaborated which will prove very beneficial in all directions. When a child has learned to apply the law of gravitation or the mathematical principle of proportion in his shop work or in a physical experiment, he will recall it more easily, and will likewise understand it better: for the work he does in his endeavor to produce something which is governed by what he has theoretically learned to recognize as laws or principles, will make an incomparably deeper impression upon his imagination and will be retained much longer and more distinctly by his memory than any mere theoretical exposition.

Apperception of new concepts would be impossible, as we have seen, were we not in the condition to associate them with, and assimilate them to, concepts already formed. The entire body of concepts, however, which represents our intellectual possessions, is the product originally of direct sense-perception, and the discrimination, combination, classification, and modification of the same by the activity of our imaginative and reasoning powers. The more comprehensive, accurate, and suggestive our perceptions, the more reliable and better grounded will be our apperception, the better equipped and more powerful our mind.

Of the motor values of objective and manual exercises, more will be said in a later chapter. But even the foregoing argument will suffice to set forth the claims of these exercises to be recognized as efficient for the stimulation of the higher processes of mental activity, so that they may fitly be considered the vantage ground of successful instructional effort.

In grouping the studies of the school curriculum in the light of the principle of objectivity which we have recognized to be the effective principle of co-ordination, the usual order of relative values appears to be reversed. Heretofore reading, writing, and arithmetic occupied the central position, and the other branches, including natural science and manual training, were reluctantly admitted and barely tolerated at first. Now the objective branches dethrone the ancient trinity, and a new dynasty ascends to the seat of honor. The central group is formed by elementary natural science, including geography and manual training, as well as the education of all the senses, consequently such branches as physical exercise, vocal music, and elocution. Around this central group are arranged those studies which derive their subject matter from indirect observations or secondary concepts, but which, nevertheless, are of supreme importance on account of their specific culture value: literature, ethics, history. Language, as being essentially a *means,* or *mode,* of reception, formulation, and expression of thought, is the common servant to all, which, as a servant and as a vehicle of the assertion of individuality, is worthy of the most careful training. The mathematical element whose function it is to give accuracy and exactness to ideas, and to evolve the definite from the indefinite, permeates the entire body of studies.

What distinguishes this scheme from that of Ziller and other educationists of the concentration school, is not only the substitution of another effective principle of co-ordination, but also the democratic spirit which pervades it. It is, besides, largely a *methodical scheme,* selecting, as it does, the natural vantage points in each branch of human knowledge; it purports a grouping of *activities* rather than one of so-called branches of instruction. It establishes a right relation between the studies without forcing the majority of them into a humiliating subservience to one central idea. It preserves for each a wholesome amount of independence. They are grouped in the order of their functions, true; but the central group represents rather the government of a democratic republic than an absolute monarchy. In it the *principle of educational unity* manifests itself, and the highest functions of the entire system are, *therefore,* vested in that group.

And there is another significant point of difference. The system here suggested preserves a wholesome *elasticity*. The arrangement proposed rests on the discrimination of the *receptive* and the *expressive powers* of the mind. Now, while it is true that the mind receives its primary ideas thru direct sense-perception, so that language appears to be nothing but a vehicle of expression, it is no less true that language also mediates a vast number of secondary concepts which, in the end, form the larger and more important part of our stock of knowledge. Language, as will be seen later, has also a distinct value for the training of the reasoning powers. And it must not be overlooked that language is only *one* of the modes of expression, even, as Dr. N. M. Butler once expressed it, "of all the modes the most difficult, the most abstract, the latest acquired." The very same experiments, and manual and art exercises, which we have included in the central group, are so many modes of expression. "Man can express his mental states or ideas by the use of language, by gesture, by delineation and by construction." Now this mode, then another mode of acquisition or of expression will be the most appropriate and efficient, and the exercises will have to vary accordingly, one "study" or "subject", or one method of treatment, being substituted for another.

This outline of principles points to another consideration which has only recently been appreciated in its fuller significance. If the center of any rational system of co-ordinated instruction is the *child*—if it is acknowledged that the child's native interests will regulate our course and guide our steps in all our educational efforts: it is plain that it would be futile to attempt the establishment of a system of correlation which would neglect the *successive stages of growth,* and which would remain rigidly stereotyped thruout the grades. For the child's native interests *change* with his growth, as he passes thru successive developmental epochs which, while making him very unlike the adult at each individual stage, can roughly be compared to the successive stages which are historically and biologically evident in the evolution of civilized man. These shifting interests, expressive as they are of the relative culture level which he has reached, will have to be utilized as points of vantage; and the work of each grade, or instructional period, will have to be grouped around the central interest. In this way, indeed, an arrangement will commend itself which may justly be called an approach to *concentration;* for tho there never need be an absolute sacrifice of what I have called the "loose threads", there will have to be a temporary subordination of certain branches, not so much to any particular other branch, but to some central idea which will correspond to the child's supreme interest at each epoch, and to his stage of physiological and psychological evolution. As these change, so the central ideas will change, and now this, now another "leading principle" will assume prominence. There will have to be a continuous re-adjustment of subject matter as the child progresses from infancy to maturity.

To illustrate once more, as has been done in the foregoing chapter: the kindergarten and even the primary child, representing the symbolic stage, will be supremely interested in mythological conceptions of the world around him. All the work in nature study, in literature, in history, in constructive activity even, will exhibit symbolical and mythological aspects, and correspond to the play instinct of these early years. Again, the boy of pubescent age, in the sixth and seventh grades of the ordinary system, cares little for dreamy symbolism and mere make-believe activity. His interest centers in adventurous heroism, and he evolves altruistic feelings out of primitive selfishness. The work of this period must be heroic, bold, and partake of the nature of conquest, as it were. Heroic history, with its geographical setting, virile poetry, arduous and incentive work in mathematics and science such as will engage fullest intellectual strength and desire for conquering obstacles, much physical exercise and the like, will constitute a wholesome diet for him. The girl of this period is quite different—sexual differentiation setting in at this time, and she needs a different instructional prescription. It will be seen that reference is here made not so much to a subordination of subjects, as to a careful selection of topics and tasks, and to the method of their presentation.

There is, however, one particular point requiring attention. It has been shown by psychological research that there are what has been called *"nascent periods"* for different activities, in the mental evolution of the child, periods which give birth, as the name implies, to new developments. Thus, we have the language instinct arising at the time of infancy and reaching its climax during the years from seven to eleven. The years from five to seven are the "counting period", when children will count anything and everything. At 9, children reach maturity in hand and finger control; but not before the eleventh year is the freedom of the wrist movement gained. At 10, the pleasure of thinking out logical sequences springs up; at 11, there is a minimum of interest in reading, followed immediately by a maximum at 12. This age is also the maximum point of the interest in geometrical and in mechanical puzzles. More of this will be said in another chapter. It requires no extensive argument to point to the great instructional importance of these periods of nascent interests, for it is at these junctures when we can enlist the child's greatest effort in the mastering of the subjects upon which his attention is concentrated, to which his mind awakens. Consequently, we shall do well to lay special emphasis upon such subjects at such times, and to subordinate all others. Tho we are yet far from being able to determine in detail these nascent periods for all branches of instruction, or for all children individually, we have at least learned to recognize the variation of emphasis at different stages as a leading principle of co-ordination; and some of these periods are certainly quite well established. We may, for instance, justly lay special stress upon the acquisition of the art of reading at the age of nine; upon literature and extensive collateral reading at the age of twelve and upward. We shall have occasion to refer to other centers of energy in another chapter. These *centers of energy* will determine what has been called the "core" of study at the different periods.

It is beyond doubt that the kind of co-ordination here suggested will have a distinct ethical effect, altho we may not select the so-called "Gesinnungsstoffe", or ethico-religious subjects, such as literature, history, and the Bible, to form the central "core" around which the others would have to be grouped, as the Herbart-Ziller school of educationists had suggested. The most effective element of school instruction will be found in the principle of co-ordination itself, with its tendency to *unify* all instructional factors into an organic whole, so that, in the child's mind, there be produced what German thinkers call "Totalanschauung" (unity of conception, as well as conception of the world as a whole, or unity). The principal agent in this process of unification must be the *teacher* in whose own mind the idea of unity must reign supreme, and who must be able to produce in the child's mind a consciousness of the right relations, a totality of concept, in which all individual elements, percepts, impulses, sentiments, are arranged in an order not only logical but ethical. This cannot be accomplished by the practice of the old school which undertook to pour a vast amount of information into the child in order to *give* him what was supposed he needed; nor according to the Socratic idea that the teacher should simply make the child conscious of what he really knows—for he does not "know" anything—: but by simply *directing* the child and creating such conditions for him that he can *find* the truth and the higher law, which is the same in the world of objects as it is in the field of ethics, by his own effort and activity. Self-activity of the child is the key-note of this scheme of co-ordination.

CHAPTER IV

The Physical Side of Education

WHATEVER may be our conception of the nature of the human being—whether we consider mind and body as one, the mental and the physical manifestations representing merely two different aspects of the same thing, or one being the function of the other, in reciprocal relation (monism); or whether we understand them as two different elements, or principles, belonging to different worlds, one material and the other spiritual, and being governed by different sets of laws (dualism): this fact will be recognized by all that there is a close relation between body and mind, a mutuality of dependence which is becoming more and more understood and scientifically determined. Bain says: "The organ of mind is not the brain by itself; it is the brain, nerves, muscles, organs of sense, and viscera."

It is now well known among educators and alienists that mental and moral disorders and defects are often but symptoms, or effects of disease. It will therefore commend itself to teachers and supervisors to watch pupils carefully as to abnormal developments for the purpose of forestalling, or at least recognizing, disease signs. Every teacher ought to learn to make a simple diagnosis of common children's troubles, and to be versed in the conditions and factors of normal and abnormal child growth; and regularly appointed school physicians should assist them in this respect. Each school should be supervised in a systematic way by such physicians, some of whom ought to be specialists of different kinds, and all of whom ought to have a particular familiarity with pediatrics. A careful and complete system of educational child study, such as should be organized in every school, will include physical measurements and examinations at regular intervals.

In some larger school systems some such organization has already taken place, and in some instances there is a systematic co-operation with the Boards of Health. But a complete organization such as the author has in mind, has not yet been established anywhere. And it is a matter of historical interest, perhaps, that the first complete system of this kind in this country at least, was inaugurated during the author's superintendency in the "Workingman's School", later called the "Ethical Culture School" of New York City, as early as the year 1892. A full description is contained in the author's little book, "A Working System of Child Study for Schools" (C. W. Bardeen, Syracuse, 1897) to which reference is here made for details.

Here it may suffice to say that the child's physical history, his hereditary and environmental conditions, were ascertained as far as possible as soon as the pupil entered the school. A regular system of body measurements and examinations followed the child up from year to year.

The advantages of such investigations are patent and manifold. They enable physicians and school authorities to discover incipient diseases, and to militate against the spread of contagious and infectious maladies. Much of subnormal and abnormal deviation and derailment can be traced to its first causes, and occasionally checked, or at least placed under proper observation.

Infectious diseases are fraught with danger not merely by their immediate presence, but also by the injurious after-effects which follow in their wake. There is consequently need of careful control, and even rigid measures may have to be insisted upon, on the part of the school authorities, even tho they may find parents, and at times even their family physicians, disinclined to submit to the inconvenience which is caused by quarantine precautions.

Other troubles needing careful and conscientious watching, and often producing serious effects on the mental and moral condition of the pupils, are eye, ear, throat, and nose defects. Impaired vision is responsible for much seeming inefficiency in the school room, as is likewise weakness of hearing which is frequently caused by adenoid vegetations in the nasal-pharingeal passages. Mouth-breathers can be readily recognized by their more or less stupid expression. Inflamed eyes are often infectious. A watchful study and conscientious consideration of these ailments will be very helpful in discipline, as they are the cause of much aberration from the straight and narrow path of what is styled "good conduct." More of this will be said in the chapter on discipline.

The reformative value of physical training has been fully demonstrated in the treatment of the delinquent classes. Physical exercise and activity are a valuable means in treating defects even of a seeming moral nature, and will sometimes brighten up a brain whose functions were thought to be dull. It is a common experience even of adults that a change of occupation, particularly a change from mental to physical activity, relieves weariness and effects a restoration of the mental powers. Fresh air has proved itself a wonderful remedy for obstreperousness and ugliness of temper.

This suggests the necessity of ***hygienic measures of precaution*** for the purpose of forestalling distressing developments. As a complete chapter will be devoted to hygienic suggestions, it will suffice here to give a brief survey of the requirements. Many of the measures to be reckoned under this head are of course dependent upon the conditions of the home life of the children, and are but indirectly under the control of the teacher or school authority. It is mandatory, then, that efforts be made to establish a closer connection between home and school, so that parents may be induced to listen to the advice of professional educators and physicians in matters touching the privacy of their homes, as long as they refer to the educational environment of the children. Parents' meetings, school and visiting nurses, and similar agencies, have already been arranged for in some places to bring about such a closer contact and co-operation.

First of the conditions of healthy child life is proper ***nutrition***. What kind of food, and what quantity, children should have at different periods of their lives, requires not only a great deal of common sense, but of scientific research. Students of pediatrics have devoted much time to this research. The problem of school lunches is such an important one that in some places the schools have undertaken to furnish lunches, the composition of which is made the object of much painstaking study. Few parents have as yet given this question its full share of attention. Insufficiency of nourishing food is one of the most ordinary causes not only of physical, but also, and largely, of mental and moral disturbance, and even abnormality. Malnutritrion (insufficient breakfasts, for instance) is at the bottom of most of the "school headaches", improperly so called.

Cleanliness is the second prerequisite of normal work. Cleanliness of the body and cleanliness of the clothing, of the bed the child sleeps in, of the rooms, at home and in school. It may not be clear to everybody that the skin has an essential function in the process of assimilation and nutrition so that cleanliness is really an accessary to food. Bathing, its frequency, time, and nature, is a subject which should receive much care. In the schools there should be ample provisions for cleaning, ventilating and washing. School baths have been introduced in many cities abroad and in some of this country. Those who have no experience in this matter would possibly be surprised to see the difference it makes in the alertness and attention of pupils whether they had their bath or not. Sending a listless child under the shower bath recommends itself in many instances as a much more rational measure of discipline than to send him to the principal's office for punishment.

The matter of *rest and sleep* is another factor of enormous influence. Children are not infrequently kept up too late at night, partly from over-indulgence, because our little ones like it only too well to imitate the evening hours of their elders; partly as a result of the objectionable custom of taking children out to parties and amusements when they ought to be in bed. Again, there is pernicious overburdening of pupils with home work, or with home duties of various kinds; teachers and parents are jointly responsible for this abuse.

The effects of hygienic neglect are designated as *fatigue.* Fatigue, then, must be understood as being caused not only by lack of rest, or by overwork; malnutrition and absence of cleanliness are just as responsibe for it. It produces serious mental results which mean, broadly speaking, a "relapse into the animal method of non-reasoning." The human being ceases to be rational when under the effect of fatigue; it is plain that children, having less power of resistance than adults, suffer particularly from these conditions. Every effort, long enough continued, or indulged in too intensely, produces fatigue. Interesting investigations have been made in regard to the fatigue values of the different school studies. The daily program of exercises must therefore be carefully planned in order to balance the pupils' powers of application. Forenoon and afternoon work must differ in character, as surely the different hours of the day have different energy values for the children, individually and collectively. Recesses should be systematically distributed to afford relief and recreation at the proper junctures; the length of the instruction periods must be adjusted to the fatigue values of the studies referred to before. A change of employment, altho generally having the function of relief, is not in every case recreative.

Fatigue, it ought to be noted, is often due, not to overstrain or hygienic neglect, but to poor training. It will manifest itself when children have not learned the best method of applying themselves. When there is a lack of interest and inspiration, there will be ready fatigue. More frequently, of course, fatigue follows over-exertion. A tension of the attention and energy which may even succeed in overcoming the first stage of fatigue and in calling forth what has been denominated "second breath", will end in a still more serious collapse.*

There are several definite signs that can be observed as indicating fatigue, no matter by what this fatigue may have been caused. An enumeration of these, as given by Edward D. Meck some time ago, may not be useless for the teacher. They are as follows:

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*Cf. G. E. Partridge, "Second Breath", Pedagogical Seminary IV, 3.

Physical fatigue: (1) Angles of mouth depressed; (2) furrows across forehead; (3) eyes wandering; (4) coloration beneath the eyes; (5) white line around the mouth; (6) bluish spots on cheeks and neck; (7) pulse unusually slow or rapid; (8) frequent attacks of headache; (9) awkward position of body; (10) neurasthenic voice; (11) unnatural action; (12) general appearance of depression.

Mental fatigue: (1) Lack of ability to give attention; (2) weakening of perception; (3) unreadiness and inaccuracy of judgment; (4) diminished power of insight; (5) loss of sensitiveness; (6) lack of self-control; (7) lessened work-rate; (8) lengthened reaction time; (9) deep sense of misery in the morning; (10) one or more insistent ideas which cannot be thrown off.

Lack of exercise, sedentary habits, are just as apt to lessen the vitality, producing a kind of chronic fatigue, as is over-stimulation. Girls in the pubescent period suffer particularly from too sedentary and confining a life.

This consideration alone would prove the great value of physical exercise, and of excursions and walks in connection with nature, geography, and history work, even if these had no claim as excellent methodical devices. And the demand for manual training, apart from its tremendous importance educationally, as set forth in the previous chapter, also has its function as healthy bodily exercise. The recreative and inspiring effect of games, gymnastics, and vocal music are very evident in this connection. The value of rhythm, and of rhythmical movements, has been touched upon before. This element will enhance and stimulate all physical exercise.

A factor which cannot be too often urged as operating in a marked degree against the natural vitality of children, is the dull routine of the schoolroom over which a mechanical teacher presides. Monotonous lessons, over-exacting exercises, tedious repetitions make a naturally bright child fatigued and dull. Add to this overheated and ill-ventilated rooms, improper and ill-fitting furniture, vicious methods in writing, sewing and other handwork, and you have a combination of evil influences militating against the natural impulses of the child.

A very pronounced difference has been observed in the rate of growth of city school children during the summer vacation months, as compared with the growth during the nine or ten months of school; these children gain as much during the summer as they do the rest of the year. While perhaps the summer temperature may increase slightly the metabolism of the children, it cannot be denied that the unnatural restraint to which they are subjected during school time, has much to do with this remarkable difference. For with children who live under natural conditions all the year around, the very opposite condition has been observed. With them there is a minimum growth during the summer months, and they are even apt to lose during this time the amount of weight they had acquired during the middle period which lasts from about April to June or July. The maximum period when the child accumulates the increment in weight which is to last him for the year, covers naturally the winter months.

As early as in the year 1897, Dr. Townsend Porter has shown by most interesting investigations that the growth periods of a child are intimately connected with his mental evolution. He demonstrated that children nearest to the average weight of their age are to be found a class higher than they are supposed to be according to the artificial standard. He also found precocious children to be taller as well as heavier than dull children. Successful children have larger chests than the unsuccessful. The width of the head, or distance from one parietal eminence to the other, measured with calipers, is also greater in more advanced pupils than in those less advanced. He thought that no child whose weight is below the average of his age should be permitted to enter a school grade beyond the average of his age, except after such a physical examination as shall make it probable that the child's strength shall be equal to the strain. It was also shown by him that the normal age for each "school grade" was about a year higher than the traditional standard, which goes to prove that this standard is artificial, unjust and consequently injurious.

Recent investigations in New York have led to a discrimination between what may be called the "chronological age", and the "physiological age" which is determined not by the number of years a child has to his record, but by the degree of physical maturity. (Dr. C. Ward Crampton). To this distinction we may add the other of *psydiological maturity*. The mental and moral development of a child is by no means parallel to his "chronological" or "physiological" age, in every instance. But the proper grading of a child depends naturally upon all these factors.

It is clear, then, that these growth periods, in the individual children, must be carefully observed. Regular measurements, accompanied by physiological and psychological tests, will render the opportunity.

In regard to a proper application of the data obtained, we must first consider what must be avoided to prevent unwholesome influences, arrest of development, interference with normal growth, etc. Let us remember that, while exercise stimulates growth, too much of it has a stunting effect. The tall races are the conquering ones, and pigmy tribes and dwarfed children show the effect of lessened vitality, or relentless drudgery. Then again, we ought to be very clear as to *where* stimulation and exercise are needed, in what degree, and of what kind.

A few facts may here be mentioned, by way of introduction to the subject. The years from six to nine require exercises exciting growth. Joyful, simple games are all that is needed, none that strain a small number of muscles, but such as give full play to the central movements of the whole body. There must be ample opportunity for such exercise; forcing the children of these tender years to stand or sit still for any length of time implies an intense strain. If we further remember that at the age of 8, the brain reaches almost its full weight, we shall understand why now the period of choreatic attacks begins, a period which may also be called the fatigue period. This period has been described as one in which the anomaly of a dilated heart occurs in children, with evidence of cardiac incompetence, such as shortness of breath and readiness of fatigue. This critical period is fraught with danger, as it is quite insidious in its approach. Physical and mental fatigue signs are both present, and the child, instead of needing more exercise as some may be inclined to think, should be given opportunity for lying fallow and conserving his strength. Applied to the work of the school at this stage, it should be diminished temporarily, in quantity as well as in intensity.

It may be assumed that this manifestation of weakness in the child has its cause in the fact stated before, that the brain has now attained almost its full weight and that the functional development begins which draws a large share of the blood supply to the nervous system thus taxing the heart more than before and depleting somewhat the vital organs. And during the period of transition the nervous system is naturally more sensitive to injurious influences than at other times.

The years from nine to sixteen are the period of most rapid growth in height and weight. Again, exercises exciting growth are well adapted to this age, and the aim must be to co-ordinate motion and emotion. A well-poised carriage and a control over the body in general and its movements, making these expressive and rhythmic, will be the result. Tactics and calisthenics are most appropriate at this period, but care is necessary to avoid exhaustion as the power of resistance is yet low.

The new forces which mark the dawn of puberty are now manifesting themselves, and the racial and national instincts, reverberations of the early history of the special branch of humanity from which the individual has sprung, now force themselves into the foreground and give to the age of adolescence the character of adventure and conquest. The children delight in forming predatory societies, in teasing and bullying. The primitive instinct of exultation of victory leads the pubescent boys to give the impression of having lost all sense of sympathy and charity; and the practical jokes, so much indulged in at this stage, are relics of the spirit of primordial warfare and torture.*

Athletic games which symbolize these tendencies and make them harmless, will serve as a safety valve.

The year from 11 to 12 inaugurates the perfection of the muscular system. Games of skill at this period will afford training in muscular quickness. This is also the age when sexual differentiation sets in.

Girls have a period of maximum growth from 11 to 12 years of age. In boys, the antero-posterior diameter of the chest reaches, at the age of 12, double the width it was at birth. Boys differentiate so as to represent the katabolic, energy expending, masculine type; girls assert their femininity by the anabolic, energy conserving quality of their nature. Boys of 12 exhibit fighting tendencies; their interest changes from playful symbolism to bold realities. They brave danger; they organize in "gangs"; they are hero-worshippers and follow readily a leader if they cannot themselves be leaders. Rough games and strength-trying athletics stand foremost in their minds. They are so conscious of the advantages of masculinity that they have little patience or admiration towards girls. In opposition to this exhibition of ancient tribal instincts on the part of the male sex of 12 years of age, the girls of the same age develop subjective tendencies. They become sensitive mimosae and indulge in what is called the "proprieties", sometimes to a morbid degree of excess. Sentimental friendships take with them the place of the boys' hero-worship. Their tendency is towards gracefulness in exercise, and poise in vigor.

At 13, two years later than the girls, the boys have their maximum of growth. Still endurance games, such as mile run, tug of war, football, should be avoided as they involve too great a strain for the imperfectly developed organs of the child of this age. Apparatus work, intricate ball games and other games of alertness will prove valuable at this time. Similar exercises, toned down to graceful proportions, will satisfy the needs of the girls at this period who reach now their maturity in rapidity of movement.

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*President Stanley Hall and his school of investigators have furnished much of the material from which these conclusions are drawn.

The years from 14 to 20 are, for the boys, the period of physical development par excellence. There is now a strong activity of the vital organs, heart and lungs, to be observed, which manifests itself in a high degree of skill, daring and courage. Yet, before the end of this period, endurance games would still involve a great amount of risk; high school football teams are really an anomaly. The maximum of strength and endurance is reached at the age of 20 or 21—an age designated by ancient usage as the age of "majority".

The girls are considerably less vigorous at this stage of their life. There is a rapid falling off in the growth rate, and the girls are more apt to contract disease now than at any other time, so that this epoch in their development may fitly be called the *disease-period*. Yet, there is also rapid increase in strength, while with the boys this occurs a year later. It is interesting to note, however, how weight and vitality progress along parallel lines.

From the foregoing, the function of gymnastics in education will be plainly intelligible. Gymnastics is a collective term, including all such exercises in physical training as pertain to a healthy and poised development of the body as a substratum of the mind, or, if one prefers, of the body as a ready tool of the spirit. It purports a harmonious development in proportion to physical and mental growth, and ministers to the various and varying demands of this growth. Its outward result manifests itself in a proper carriage and control in all positions of the body, in sitting, walking, standing, and in the performance of all its functions. It means, finally, complete self-control with reference to the physical factors of human life.

Sports and athletics can only be considered a part of a complete system of physical training, and are embraced in the term "gymnastics". Taken separately they can never suffice or take the place of a full-rounded course in gymnastics. Sportsmen and athletes are specialists, and their training has little of genuine educational features. Particularly one-sided is military drill which has sometimes been suggested as a fit exercise for school children. Exercises of a "military" character may have a place at certain stages in a complete physical curriculum; but their scope is narrow, and their tendency of doubtful ethical significance. It may prove helpful only at the stage when primitive instincts manifest themselves in the adolescent boy, and it requires careful handling so as not to perpetuate those brutal impulses and to elevate them to the dignity of a patriotic ideal.

Physical training ought to be regulated by individual conditions, particularly weight, and not by school grades, artificial as these are usually organized. The pupils of a school, or even of an entire school system, should rather be taken in sections, carefully grouped on the basis of measurements and examinations.

It is hardly necessary to emphasize the need of open air gymnasia to supplement the indoor halls for gymnastic exercise. And there ought to be a generous proportion of games included. These should be graduated, to follow the leading interests and needs at different stages of child development, and would include dramatic impersonations. Certain games derive their educational value from the fact that they assist the child in working off primitive instincts, which must make room for higher civilisatory impulses, by a "lopping off" process, as it has been called.

Playgrounds, open all day to the children for exercise, will supplement the systematic work of the school. To make these educationally valuable, they must be under the direction and supervision of trained teachers.

The general tendency of a well-organized system of physical education is all-aroundness, symmetry; the final aim is POWER, VIGOR, SELF-CONTROL. There is, then, a very decided ethical element in physical training when it is rightly understood, and it assists to a marvellous extent in the training of the will.

The physical side of education is as essential a part of the general scheme of a co-ordinated course of study as the scholastic part, and it pertains to the realization of the ancient motto: *"Mens Sana in Corpore Sana."*

CHAPTER V

A Rational Course of Study

A

IT is not intended to present in this chapter an outline of a rational course of instruction in detail, but to suggest the consideration of the principles which ought to determine the selection and arrangement of the instructional elements. Some of the details have already been alluded to in previous chapters, and more will be submitted for consideration in the following sections.

The first question which presents itself to us would be, it seems: Is a course of study, as one is generally understood, a necessity, or can a school do without it? Pestalozzi, at Burgdorf, worked without a course of study, and yet his work meant an educational revolution. But surely he had a well-defined plan, or purpose, in his mind which regulated and articulated the details of his daily routine, if there was such; and the creative genius of the man was equal to the task of adjusting himself momentarily to the exigencies of individual situations. If every teacher were a creative genius, and if any given set of co-workers in a school could work in harmony by intuition, an outline of the work in hand would not be so necessary. On the other hand, if a written and formulated course degenerates into a formal, mechanical thing; when it becomes a straight-jacket which prevents freedom of movement; when it is the embodiment of punctilious rules and prescriptions, edicts and directions, formulas of formalities of "methods" and devices: it will surely prove itself an obstruction in the way of rational education. A course of study, intended for the development of the growing minds of living children, must itself be a living, growing organism. It must not check, but encourage the originality and spontaneity of the teacher. Teachers differ in attitude and capacity; classes differ likewise, and a "fourth grade" of one year may not easily be compared with the same grade of the previous term. There must be opportunity for adjustment; there must be elasticity. The same object can be accomplished by various means, and what is impossible for one person is a matter of course with another. A course of study ought therefore to have the character of an outline to be filled in, rather than of a detailed, cast-iron prescription. It must be suggestive rather than authoritative. If the director of a school, or of a school system, is really a "director", and not merely a figure-head, or a pedantic crank, he will find little difficulty in articulating the spontaneous work of intelligent teachers within the limits of a suggestive course.

The second fundamental question would be: What must be the aim of a rational course of study? The answer to this question, surely, depends upon the answer to another: What is the meaning of education, notably school education? To avoid a lengthy discussion of this question which has been answered quite differently by different persons and at different times, the author may be permitted to suggest his own answer at once. In his estimation the purpose of educational efforts is threefold: First, to mediate to the young the experience of the race; second, to minister to the perfection of our race; third, to place each individual in a position that he may work out his own salvation and destiny in his own individual best way.

If this definition is accepted, the aim of a course of instruction would also present a threefold aspect. There should be:

(1) Information and experience;

(2) Training and exercise;

(3) Individual tests, universality of opportunity, and freedom of expression.

The ultimate aim would appear to be the development of *power* and *character* in the individual.

The traditional course of study clung to the "three R's", and such things as geography, history, music, drawing, gymnastics, sewing, shop work, nature work, were only admitted after a long and painful struggle. At present, an ordinary program looks pretty full. Teachers sigh whenever a new suggestion is made because it means new effort, more time; or less time to the old branches, and yet the same amount of work, or "results", seems to be demanded as before.

How can this difficulty be adjusted?

A review of the chapter on the "Principles of Co-ordination" will give the clue.

In the first place, by *eliminating* unessential details from the curriculum. The restriction of the school work to a few branches has given occasion to dwelling too much on details, and this detail work is yet haunting our minds, being mistaken as indispensable when it can only too readily be dispensed with. Spelling, grammar, and arithmetic have been veritable fetiches. Even at the present enlightened age, some schools which enjoy an enviable reputation endeavor to teach spelling by obliging their pupils to commit page after page from a dictionary to memory, with all the definitions and variations. The spelling of a vast number of uninteresting, unintelligible and unusual words, for the sake of "drill", is still a common practice in many schools. Then there is the attempt to inculcate a knowledge of grammatical relations in the minds of children whose power to think in abstract forms is only budding. The result is an accumulation of dead matter in the memory, which is less than worthless for the development of correct manners of speech. Of these things, and of the senseless practices in arithmetic, there will be occasion to say more in the chapters devoted to these disciplines. There is great need of a radical simplification of the course in these branches, as well as in some others, notably penmanship. Exhaustive thoroness within what appear to the *adult* mind "elementary" limits is beyond the possibility of the *child*.

The second requirement of adjustment is a *proper distri-*

bution of the work so that the different parts may be introduced at times when there is least friction and resistance in the assimilating process within the brain, when there is an awakening interest. In a later part of this chapter the *nascent periods,* and the *culture epochs,* will be discussed more fully. Let us here illustrate what a proper distribution means by referring briefly to the waste of time caused by a too early introduction of the arts of reading and writing. That reading and writing are identical with "learning" in the minds of still too many, has often been brought home to the author by the question almost regularly asked of him when he suggested to teachers the omission of these two branches in the primary grades, postponing them to perhaps the third. "But what else can we teach?" was the puzzling problem confronting the amazed pedagogs. And parents who wanted their children promoted from the kindergarten to the primary so that they would "learn something", had the same perplexed attitude when an attempt was made to argue with them.

Children of six or seven years of age are far-sighted, and the fine adjustment to the requirements of the printed page are directly injurious. Then there is the evident lack of muscular control in eye and hand at this stage, in both reading and writing. In writing, this lack of control has long suggested the use of slates in the primaries. There have been schools where the pupils were hardly ever allowed to outgrow the slate stage for rapid practice at any time. And yet, few things were more injurious than slates. They make a heavy hand, and cause a waste of time in after years for the pupils and acquire a fair degree of fluency in writing. Of the hygienic objections to the use of slates, most teachers ought now be thoroly convinced. Penmanship ought not to require much time; if a rational system is used, it may be considered almost incidental. The introduction of simplified forms, either vertical or with a "modified" slant, has already done much toward a solution of the problem of teaching penmanship without undue sacrifice of time.

This reflection suggests the third requirement of adjustment: *better methods of presentation.* With regard to these, the following considerations offer themselves:

There must first be the recognition and construction of an *apperceptive basis.* We must ascertain what the children know and think, what concepts were formed in their minds before they were handed to our care, so that we may build upon a sure and safe foundation. As said before, we take too many things for granted in this respect. Even the simplest things are often unknown, or imperfectly known, to young children. Dr. K. Lange's experiments in the schools of Saxony revealed the following facts:

	Per Cent. of	
Question or Concept:	City Children.	Country Children.
(1) Seen the sun rise	18	42
(2) Seen the sun set	23	58
(3) Seen the moon and the stars	84	82
(4) Seen and heard a lark	20	70
(5) Seen fish swimming wild	72	83
(6) Been to a pond	51	86
(7) Been to a brook or river	71	82
(8) Been on high hill or mountain	48	74
(9) Been in a forest	63	86
(10) Know an oak	18	57
(11) Seen a corn or wheat field	64	92
(12) Know how bread comes from grain.	28	63
(13) Seen a shoemaker at work	79	80
(14) Seen a carpenter at work	55	62
(15) Seen a mason at work	86	92
(16) Been in a church	50	49
(17) Know aught of God	51	66

Discoveries of this character may be easily made on this side of the water, and in every school of the country. And the results are very helpful. They show that not in any one instance were *all* the children informed about the simple concept referred to in the question, the highest per cent. in any case being 92; in many cases the percentage of ignorance is so surprising that it will set many a teacher a thinking. And again, the influence of the environment is clearly seen; upon the impressions rendered by the immediate early environment depends largely what we have learnt to call the apperceptive basis. How true this is can be demonstrated in many ways. In visiting the schools of a Western town some time ago, I invited the pupils of the primary classes of different buildings to draw for me a tree. The pupils in an outlying district drew, almost to a man, pine trees; those living within the town, ordinary foliage trees. The schoolhouse in the outlying district was surrounded by lofty pines, and the concept "tree" was, in the minds of these children, intimately connected with this experience—a pine tree was *the* tree for them. The trees in the town itself were shade trees, and furnished a different basis for conceptual recognition and reference.

In Berlin, some years ago, in a similar investigation, the children in the primary grades of the schools were asked whether they knew what a mountain was. Now, the capital of Germany is situated in a plain absolutely devoid of elevations. The nearest approach to a hill within the limits of the city is a sandmound complimentarily appellated "Kreuzberg" on top of which there is a soldiers' monument. It caused no surprise to discover that the children whose concept of a mountain had been built on the sand of this mound, defined a mountain as being an elevation "with a monument on top". The monument was considered a necessary requisite of a mountain, as it had been religiously connected with the first formation of this concept in their young minds.

Then, even when children answer a certain question, as, for instance, "Have you seen a cow?" in the affirmative, it does not prove that they state a fact in our sense of the word. It may happen that in reply to the next question, "How big is a cow?" they will tell you all sizes from that of a butterfly to that of an elephant. They may have seen but a *picture* of a cow. The distinction between pictures and real things is not readily made in childhood; and to infer from the scale of a picture the actual size of an object is not an easy matter for minds untrained in the experience of ratio and proportion.

Besides taking into account the apperceptive basis which is already there, we must see to it that for all the new concepts which we desire to mediate, we build up another appropriate foundation. This alone will enable the child to advance in mastering the world around him conceptually, and to assimilate the wealth of new impressions which await him. In this process we shall do well to remember that the child is apt to employ the rudimentary logical method of analogy to connect later facts with previous experiences. This method often leads to curious mistakes, and it is only the very watchful teacher who will successfully avoid the shoals and rocks of false analogies. This amusing anecdote will illustrate the point: The governess was giving little Tommy a grammar lesson the other day. "An abstract noun", she said, "is the name of something which you can think of but not touch. Can you give an example?" Tommy: "A red-hot poker."

In this apperceptive process the maxims quoted in the chapter on co-ordination assume their full significance:

From the known to the unknown;
From the simple to the complex;
From the concrete to the abstract.

From the concrete material in the immediate environment of the child, from the images of his own house and lawn, the trees, hills, rocks, valleys, creeks, rivers, ponds, etc.; of people he knows and occupations he sees carried on; of natural processes like water running down his own hill, of dirt washed down the watersheds of his own road, of toy boats floating in his gutter, etc., etc., from all this he must learn to construct in his mind concepts of things remote, of the Himalayas, the oceans, foreign people, and all the wonderful things that make up the life of nature and man. Words, names, pictures, samples of material even, maps, and the like, are nothing but symbols, meaningless to him unless he can connect them with real experiences of his own.

It is plain then that there must be ample opportunity for learning the significance of the symbols mentioned. There must be good language teaching and a careful study of the meaning and the use of words; children must learn to read maps, drawings and pictures, which, by the way, is not quite so easy and convenient as it may seem.

But it must be repeated over and over again that these things are after all only *symbols,* utterly meaningless and unintelligible without a knowledge of the realities for which they stand. It is sometimes amazing to observe how intensely interested even young children are sometimes in reading, and how they will swallow book after book, admired by their parents who pride themselves in the supposed cleverness of their children; but the question may be asked in all fairness: What do these children get out of the books they read? Those who care to investigate will discover the vast number of absurd misconceptions and the depth of ignorance characteristic of children who have been allowed to juggle with symbols which had no meaning in fact to them.

Begin, then, with the realities, with the concrete world of objects. Observation and experiment are the basis of experience. Let us not confine the pupils to the four walls of the schoolroom. Take them on excursions to hill and forest, thru the city streets and along the country roads, on street cars, cabs and elevated trains, railroads, sailing and steam vessels, to shops and factories, so as to open their eyes to see, their ears to hear, to train all their senses to perceive keenly. Let us teach them to record their observations accurately, to put them in order, to understand their significance, to draw inferences, to form judgments. Let us give them a many-sided experience of this sort in order to make their apperceptive basis broad and strong.

Follow this up by practical work and experiment, the learning by doing. The school garden is an open-air laboratory; the shop, an accessory to the science room. In the class room, the studio, and the laboratories, let the children reproduce the objects of knowledge, mechanically, in manual training; and artistically, with brush, pencil and in clay; and symbolize the life about them in their games, and thru the typical occupations representing man's conquest of nature thru material civilization. This latter method may be styled the dramatic element in educational instruction.

All this will build up and strengthen the apperceptive basis upon which the entire superstructure of knowledge and experience is to rest.

Another requirement of better method is *individualization*. As the apperceptive basis of one child's mind will forever differ from that of another, owing to the fact that their early environments differed, and that we can never control or equalize the various environmental conditions which determine their impressions and modes of thought: we shall find each child differently prepared for the various lines of thought which we desire to start in their minds; and also differently interested, and eager and anxious to follow them. Each child, consequently, may be expected to have a different point of vantage. These environmental predispositions are re-enforced by hereditary influences which endow the children with various sets of talents, attitudes, and aptitudes. We must not, and can not, make the attempt to grind every child in the same mill, or try to turn out machine-made graduates who resemble mechanically the same pattern, at least instructionally.

For this reason a course of study must present a great variety of subjects, such as will meet the various needs of different child types. This demand will be better understood if we dismiss from our mind the old fallacy that it is the purpose of the school work to furnish a certain amount of *information* to the pupil. It has an information value, also, to be sure; but this is in a way secondary; its main purpose is to develop *power*. Considered in this light, the various branches of "study" appear as so many tests thru which we endeavor to penetrate to the souls of our pupils, each one of whom may have to be reached by a very particular road leading to his individual retreat.

Likewise, there should be elasticity in grading and requirements so as to do justice to individual aptitudes. Neither the non-mathematical child nor the constitutional bad speller ought to be kept back in the grades, on account of his peculiar disposition. Nothing is more pernicious in educational effort than to preserve the lock-step of promotional requirements. "I have no objection to 'courses of study', in the sense in which the term is used," said President Nicholas

Murray Butler once, "but I object very much to the theory that the child who is able to take the third step must not be allowed to take it because he has not taken the second. I do not believe in holding a child back for the sake of 'thoroness' or 'completeness' of the course of study. I believe the human mind in education should always be put at that task for which it is competent."

Another consideration is this: It has often been believed that there is some special virtue in certain studies to develop the powers of the mind so as to make it apt to take up other studies with greater facility. This is what has been called the "formal value" of studies. Mathematics, specifically arithmetic, as far as the elementary school is concerned, and grammar, were particularly considered as having a large amount of "formal value." This view is largely erroneous, and it depends principally upon the kind of mind to determine what studies will have the best disciplinary effect upon its training. Every training is preponderatingly specific.

Thru correlation in the sense explained in chapter III, there is given an opportunity for making one subject fruitful in the teaching of another. *Co-ordination,* consequently, is the third requirement of improved method.

As has been demonstrated before, co-ordination means first that an interrelation of the subjects taught must be established. For the sake of convenience, all subjects are summed up under collective heads. Rector Dörpfeld's first demand was: normality of the curriculum, i. e. the full number of branches. Dr. Harris, in his formulation of the Herbartian theory, had in mind five co-ordinate groups, as follows: (1) mathematics; (2) geography, as the elementary form of science; (3) literature; (4) grammar and language; (5) history. These systems have been strongly criticized, and the entire theory of co-ordination almost fell into disrepute on account of these artificial applications of the underlying principles, so that passivity and receptivity were considered rather than the child's own activity and creative power.

It seems more rational to divide the volume of human knowledge which should be mediated to the child, into two main departments, with this understanding, however, that this is fundamentally a logical, not a psychological division, and not necessarily as such a basis of method unless it is "psychologized" (Dewey); further, that this division is not to be considered dogmatical, but suggestive and tentative, for the purpose of surveying the entire field of instruction; that there will be cross-references between the two departments, that they will constantly condition one another, and that the two main groups as here differentiated represent in reality only two different aspects of the same thing.

The interrelated scheme presents itself somewhat in this form:

A. KNOWLEDGE

(*a*) *Environment*

Geography
  (present conditions).
Science
  (evolution and laws).
Geometry
  (formal side of geography).

(*b*) *History*

The Past: Man's Evolution.
The Present: Contemporaneous History.
The Outlook: Civics, Ethics.
American and general history.
Literature and art.
Language and languages.

Mathematics is an element of knowledge pervading all branches (the precise cognition).

Laboratory and constructive work is a method of acquiring knowledge:

As laboratory work it pertains to environment;

As constructive work it pertains to history (occupations, development of civilization thru conquering the forces of nature).

B. DEVELOPMENT OF SELF-EXPRESSION

Physical Training, including music and gymnastics, games, etc.; composition; art work; inventive construction.

This arrangement is based upon the conception of the aim and function of education as submitted in the beginning of this chapter.

B.

The author's *second* contention in regard to the application of the principle of co-ordination to a rational course of instruction was this: that we must, in distributing the material, follow the natural stages in the evolution of the child soul; in other words, that not only the *"nascent periods"* for the various interests and kinds of study and work should be carefully watched and utilized, but that the entire course must be so laid out as to adjust itself as closely as possible to the even more basic successive *"culture epochs"* characteristic of the development of each individual child from primitive instincts to civilization. Dr. Stanley Hall, Caswell Ellis, Prof. Jackman and many others have shown in the past that a contemplation of these demands will demonstrate beyond doubt that the school grades as they are traditionally established, on the basis of the information-idea of education, are altogether incommensurate to the natural order of the child's development.

Two great divisions in the development of the young soul have already been indicated, viz., the period of *symbolism and play,* and the subsequent period of *realism and work.* For illustration: during the first period, man's typical occupations are symbolized and imitated in games; in the second, they are taken up realistically in the manual work, with an increasing degree of actuality. Again, first, even the making of things will have symbolical elements in it—the making of familiar objects on a small scale, e. g. on the dollhouse scale, on the play level, using a few tools only which symbolize all the rest (the knife, symbolizing all cutting and sawing instruments; the awl, representing all boring tools, etc.); in the second period, there is real work, in due proportion and with a variety of typical implements.

And along another line of interest: first, there will be the pleasure in myths and fairy tales, representing that stage in human development when all the world surrounding primitive man was wonderland; this will be followed by an appreciation of cause and effect, in science and history. In the first stage of observation and experiment, the sand table, or the sand heap, and a little garden plot will supply practically all the needs of the child; in the second, there will be experiment in laboratories, workshops, school gardens, etc.

This suggests the problem of the proper *sequence,* not so much of the studies as such, but of fittingly selected topics *within* the different groups of work. And it must be understood that it is not a *logical* sequence which is needed, in conformity perhaps with some strictly scientific classification; but a *growth sequence,* one which follows biological and psychological data and laws.

Thus, in following the nascent periods, we may at different stages have to emphasize different kinds of work, and omit other kinds, or carry them along with diminished effort.

The *culture epoch theory* which is basic to this conception, will here be outlined briefly as it presents itself to the author's mind on the strength of modern researches into child psychology and anthropology.

Four periods may be distinguished in the evolution of the child, altho it would be hazardous to attempt the fixing of age limits without allowing a large amount of margin either way. Individuals differ in regard to the length, and even the perspicuity and definiteness of characteristics, of these periods; and while we may recognize, in a general way, the sequence of evolutional manifestations, and set down, tentatively, limits of age for each epoch, there is no lock-step, and much individual variation. The four periods thus distinguishable are:

(1) The human animal stage, up to perhaps 6 years of age;

(2) The race period, from 6 to 11;

(3) Differentiation of national characteristics, from 11 to 15;

(4) Evolution of individual traits proper, from 15 up.

Let us consider the four periods a little more in detail.

The first stage has been designated as the stage of the

Human Animals

It is the stage from birth to about the fifth or sixth year. On seeing the light, the baby, altho surely the "heir of ages", is just emerging from the realm of the unconscious to the assumption of animal functions. The human in him, altho it is there in potentiality, is embryonic; the infant represents the first period of differentiation in the evolution of the human species, as distinguished from the lower creation. The baby's movements are largely of the animal type, and even his muscular control, his intellectual activity, rudimentary as it is, and his incipient reasoning, are on the animal level. The clinging power of the hands of infants has often been commented upon; it reminds us of the arboreal life of the immediate ancestors of the human race, perhaps of the "missing link", and surely of the first stages of human life. The baby is born with a "monkey thumb"; the humanization of the thumb, that is to say the power to set it opposite the other fingers, is a later development. The movements are pre-eminently reflex in character, without the intervention of the conscious brain levels; they are controlled by the spinal chord, and represent the muscular activity earliest acquired by the animal creation and perpetuated in the form of stereotyped instincts. These movements concern the body as a whole, and the limbs as wholes. Kicking, dropping, digging, piling, are among the movements of this group.

Gradually, certain lower parts of the brain itself come into activity. The years from one to three contain, it has been shown, the greater part of all education, taking education in its broadest sense. For in these few years, the fundamental habits of activity are acquired, on the basis of inherited animal instincts. The pre-human, and primitive human periods comprise the longest epoch in the development of civilization compared with which later civilized life itself is but an episode as yet; no wonder that the corresponding epoch in the child's life is basic, and pregnant with formative elements.

The reflex habits of obedience, cleanliness, truthfulness, etc., are now acquired and fixed. As habits, these faculties have no ethical significance; but unless the foundation of the well-regulated life is now laid in the forms of fixed modes of conduct, the character of the individual will forever lack the element of stability. But it needs no argument to show that these "virtuous" habits are after all not yet human, but animal in kind.

This contention must not be misunderstood. The baby is, notwithstanding all that has here been said, a human being, differentiated as such even before birth, and having a human organism, a human brain, etc. Thus, all these developments, altho they are on the animal level, appear in human form, with human modifications and with adaptations to the human environment into which the child is born.

At the age of fifteen months, the child has been called "mentally the equal of the mature ape." But there is one particular instinct which even at this early stage differentiates the baby from the animal world: the language instinct asserts itself in the second year of his life, even earlier. It becomes evident in the baby's tendency to "name" everything he comes in contact with, imitating, even tho imperfectly, the names he hears, or even inventing name words of his own choosing. There is an interesting parallel between this *naming period* of the baby, and the Paradise story which relates how "God . . . brought every beast of the field, and every fowl of the air unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof." (Genesis 2, 19). This shows that even the early records of man's dominion on earth recognize the "naming" of things to be the first evidence of intellectual awakening.

At the age of three, the idea of "outside" and "inside", that is of "body" and what is "inside the body", begins to dawn upon the child. This indicates the awakening of the sense of life and of personality, and indeed, from now on, the child recognizes himself as a self, as an "I" in distinction from other selves.

The animal and primitive trait of fetich worship may be observed in children at this stage; dolls, curiosities of various kinds, playthings, etc., often appear distinctly in the role of fetiches. There is an element of superstition and fear in these early notions concerning which G. Stanley Hall has made investigations which may now be considered fundamental. The child indulges in abstruse symbols and develops a sort of materialistic, or rather pagan, theology. Even animals may be considered to have rudimentary traits of what may be styled religious conceptions.

The next step in this period is the rise of free spontaneous imitations of adult institutions and occupations such as have found recognition in the kindergarten games. Even in these, the dramatic instinct of the children crops out with peculiar force. This dramatic instinct is a valuable help in the development of the sense of self, as different from other selves, by the attempt to place one's self into the position of somebody else, imitating him. Not only is thus the difference of the individual from other individuals emphasized, but surely an element of altruism is first introduced, inasmuch as the child, by thus entering into the life of others, learns to appreciate their rights. He may, in a fanciful way, even exchange his personality, as it were, with that of his friends, and create for himself a world of reversed conditions. All this means to him an exploration of possibilities; and judging of children we must, before condemning them as prevaricators and performers, take this dramatic instinct into consideration. Children are born actors, and it has been maintained that great actors are essentially childlike in their nature.

In a similar way, the child of this age will surround himself with a number of imaginary companions. In other words, he will add to the real things of his environment which he sometimes endows with strange, fantastic qualities, creatures of his own imagination which have no external reality at all. The imaging activity of the young mind is as yet non-discriminating; and the limits of reality and imagery are indistinct.

In the *counting period,* which follows the naming period, the child rises to a clearer conception of values and proportion. Primitive counting is bound up with objects, and based upon the sense of rhythm in movement and sequence, and gradually extends to the appreciation of the harmonious arrangement of groups which are numerically identical. The mathematical concept, then, is of later nascency than the linguistic.* The counting period, covering the age from about five to seven, and indicating the dawn of precise cognition, also marks the transition to the next "culture epoch".

The Race Period.

At the age of six, or thereabouts, the race traits awaken. The human species differentiates itself, in the rising consciousness of each young scion of the common stock, into racial groups, differing from one another in consequence of influences that shaped the various primitive types. These racial differences are deeply ingrained in the soul of the children, and manifest themselves in the order of their natural succession. Now, the Caucasian child differentiates himself from the Negro; the Aryan issue from the Semitic; the Teuton from the Celt. There is now a gradual outgrowing of the stage in which crude, material symbols helped the nascent mind to develop the rudiments of thinking; and higher spiritual symbols are evolved. Many primitive religious notions, such as are reverberations of racial religious lore, crop up; doll fetichism is merging into mythological and dogmatical conventions. The early race period has nothing of the democratic spirit about it, not even in those children who represent races that were liberty-loving from the first; this is the age of submission to authority and implicit belief.

Physically, children of this age need exercises exciting growth. Fingers and hands are now becoming partially free from the lower simultaneous impulse, and can move in a fair degree independently. As shown in a previous chapter, the development of muscular control is as follows: body, shoulder, arm, forearm, hand. But not before the ninth year is maturity in hand and finger control reached, and the freedom of the wrist movement not earlier than the eleventh.

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*More details in respect to these developments will be presented in those of the following chapters which are devoted to the special topics included in the proposed scheme of instruction. At the end of this chapter, the reader will find a partial list of earlier studies upon the results of which the main line of this argument is based.

With the ability to handle tools, as produced by these developments of control, goes hand in hand the increasing interest in tool work. Thru working with tools, primitive man created civilization and developed his mind; but not before man was ready for racial differentiation was there much chance of his being deft with tools.

Sailing, rowing, swimming and other primitive exercises and occupations upon which the life of early man depended, excite the intensest interest in children of this period. Tag, and other games of this nature, reveal reverberation of the hunting instinct and of savage warfare. There are obvious nomadic inclinations: the instinct to run away and roam, the great interest in animals and animal pets. The wandering life of the early tribes which differentiated the races from the common stock from which they separated themselves in their search for new hunting grounds and fresh pastures, and the period of domesticating the wild creatures of prairie and forest are revived in these tendencies. All the actions of this period are impulsive and instinctive, without the intervention of much conscious deliberation, showing that they are manifestations of hereditary influences. The children are very suggestible and easily impressed at this time, just as the early nations were plastic and open to the influences of their environment. Environment was the most prominent factor in racial differentiation, and likewise the child of the corresponding period is the creature of his environment.

A few more detailed statements about the different years of this period may here be added.

At seven the speech organs have just completed their growth and are still pliant. The interest in names is still prominent. The period of from seven to eleven is the prime epoch for language teaching. At eight the interest in "secret", made-up languages reaches its maximum. In reasoning there is but the beginning of the logical process, very little rationalizing, in spite of the many questions into the wherefor and how and why. The children are as a rule satisfied with any answer we give them. They are fond of *comparing* things as to their qualities, in this way laying in a stock of valuable concepts.

In their story interest the eighth year marks a transition by the appearance of the question: Is it true? The mere fairy tale gives way to stories like Robinson Crusoe; the Homeric Stage is reached, and the beginning interest in history centers in persons, leading up to true hero-worship at the age of pubescence. This reminds us of the age of the Bard and Singer at the courts of ancient kings. It must not be understood, however, that there is as yet, that is to say during the early part of the racial period, much desire to *ascertain* the actual truth; the child will still believe you implicitly when you tell him the story is true.

Up to nine years there is preference for geometrical problems and puzzles: form and size, the concrete side of things, mean more to them than number, or the quantitative side. Not until this year is passed does the interest for arithmetical puzzles awaken.

The tenth year is a year of important changes, preparing the transition to a more advanced development. The *prepubertal period* begins, and the body is getting ready for new adaptations. It is now that a change takes place from simple belief to doubt and disbelief in superstitions. There is a pleasure noticeable in thinking out logical sequences, starting with the simple causative series of the order of "the house that Jack built". The children begin to take an interest in classification, marking the dawn of logical categories and abstract thinking. The nomadic, separatistic tendencies give way to tribal inclinations. Boys band together in athletic game clubs, in predatory societies, for fishing trips, camping expeditions, etc.; there is a pronounced interest in Indian life, adventure, peril. Games of competition are much indulged in, and the exultation of victory, the delight in teasing and bullying and in "practical jokes", are relics of primordial warfare.

Now the national traits commence to assert themselves. At 11 there is a maximum of predatory societies. The nation-making instincts stand foremost in the minds of the children. But it is the colonizing, conquering, adventurous epoch of the incipient nation which is here recapitulated. The Germanic tribes of whose modern descendants these statements are particularly true, were migratory tribes, and it was the "migration of peoples" which shaped the nations that are now in the lead of civilization. Hughes speaks of the age of 11 and 12 years as "the most reckless time of British youth."

It ought to be self-evident that the traditional school work is less adapted to this period than to any other; and at no time does the child, especially the boy, hate the school prison more than now. This is the age of pupil-suicides. The fifth grade, the grade of the pre-pubertal period, is a conspicuous failure in most schools. The interest of the children does not center in nouns and adjectives, or least common multiples and greatest common divisors, and such things, but in the stories of heroes and adventure.

Sexual differentiation in the physical life and in interest begins to set in. Boys, from 11 to 12, reach their maximum of industrial organizations; girls, from 11 to 16, have their counterpart in the maximum interest in social clubs. Boys now commence to learn the art of *community-making;* girls, the art of *home-making.*

At the age of 12, broadly speaking,

The National Spirit

is born. There is now a maximum of life intensity. The upper level of association centers and fibres in the brain develops; in other words, the primordial reflex activity is becoming transformed into brain function. Instead of the reflex responding to every impulse, or every impulse being directly translated into action, there is now a co-operation of the brain centers which serve to regulate, and occasionally to check, impulsive responses. Control and inhibition evolve; *thought* is born—real thought which has been styled by some psychologists as "repressed action."

The organization tendency is at its height; the boys rally around leaders and indulge in hero-worship. In girls, the same tendency leads to the formation of sentimental friendships and incipient love affairs in which they worship with exaggerated fervor some person, or persons, whom their fancy selects. The boys' heroes and the girls' friendships are powerful agencies in the building up of their characters. This is therefore a period requiring very great attention and caution, and much special study.

Gradually, the child awakens to independent thinking and logical reasoning.

The Individual Attitude

arises, often with much over-confident self-assertion, in opposition to heretofore recognized standards. At the same time, changes are noticeable which bring to light latent heredities of family traits.

Family and personal characteristics combine finally to form the *individual* whose birth may be considered to take place at the age of about 15 years. We have, then, this sequence of developmental stages: species, race, nation, family, individual.

Now there enters into the formation of mind and character the element of individual differentiation, attitude and aptitude, of choice and selection. The aboriginal selfishness slowly gives place to altruistic emotions, and the basis of that youthful enthusiasm which is creative and world-centered.

Let us understand that what has been said in these pages is merely a rough outline of evolutional stages which will repay more detailed study, and which determine the rational basis of a course of education and instruction. The application of the facts here enumerated seems easy enough in the general aspect, but is certainly difficult in detail and individual adaptation. Much will depend upon the insight and tact of the teacher who must be given a great deal of latitude for immediate and varying adjustment. The course, as indicated in another place, must preserve a wholesome degree of elasticity, to allow of sensible modification and adaptation.

As early as 1894, in the author's little book, "The Common School and the New Education", the following suggestions were made:

"The graded course of instruction . . . should comprise the germs of all knowledge in the lower stages as well as in the higher and progress should be sought by way of a gradual widening of the pupils' horizon in concentric circles, as it were, rather than pushing forward in certain particular directions.

"While thus each class, or grade, of the common school should impart to its pupils such knowledge as may be considered a whole in itself, so that no matter at what stage or age the children leave school they may take with them an education which is, as far as it goes, complete and all 'round; there will, in the higher grades, be the need of differentiation. Pupils of the requisite intellectual ability who are desirous of pursuing the higher courses of learning, might well be accommodated, even while they are still in the common school, by substituting for some of the ordinary branches other studies which have not only an educational or formal value, but may at the same time serve as introductory to the higher courses. They may also be taxed intellectually in a greater measure than those whose natural abilities or aims run lower and who should for their part be given the opportunity to finish a relatively simplified elementary course which is complete in itself.

"In other words, in the sixth or seventh school year, at a period of the child's life when his natural tendencies and capacities have had time to develop sufficient strength, the curriculum of the public school might branch out in two distinct directions, the one leading on toward higher intellectual achievements and the learned professions, the other tending to finish the common school course proper. Care must be taken not to erect insurmountable barriers . . . so that a passing from one to the other, when found advisable or desirable, may not be prohibited."

Of the sexual differentiation which means a differentiation in interests and aptitudes, and which occurs at about the same time for which this branching out of the course has been suggested, something has been said before. In the last chapter of this volume, on "High School Education and Secondary Differentiation", more will be suggested in regard to the needs of that particular period. There is another factor which should be considered in the adaptation of the school work to different wants, and that is the difference in the rate of growth and development which is noticeable in children.

It will be recognized that the main function of a rational course of study is not to prepare children for any particular occupation, or for any utilitarian object, but to develop their human and individual faculties to the fullest extent so that they become truly humanized and civilized in the service of the highest ideals. Only he who is in the best sense a *man* will be the most useful citizen, wage-earner, or professional worker. A quotation from Prof. Wm. F. Phelps' little Chautauqua text book on the Greek philosopher Socrates may fitly close this chapter:

"His antipathies were strong against the whole system of acquiring knowledge, as it was termed, *for use.* The thing to be accomplished, he avowed, was to become *true men,* and the uses would follow. Does the oak of centuries send out its strong arms that they may cast a shadow? On the contrary, it ascends and spreads thru the vigor of its *inner life,* and then tribes and nations sit down under its grateful shade. This is a cardinal truth. Knowledge attained with a view chiefly to *specific uses* never forms the man, and it is not true knowledge. First and last, therefore, it was the counsel of Socrates, BE MEN!"

A PARTIAL LIST OF BOOKS AND ARTICLES CONSULTED

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VOSTROVSKY, *"A Study of Children's Superstitions"*, Studies in Education, October, 1896.

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PHILLIPS, *"Number and its Application"*, Pedagogical Seminary, Oct., 1897.

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VAN LIEW, *"Racial Traits in the Group Activity of Children"*, N. E. A. Proc., 1899.

MONROE, *"Play Interests of Children"*, Ib.

CHAPTER VI

The Manual Principle

IT is now generally admitted that industrial training, i. e., professional training and preparation for good artisanship, for trades, for technical pursuits of all sorts, elementary and higher, should receive much more attention in this country than it has received so far. *Manual Training,* however, educationally understood, is a different thing. It is not proposed on account of its possible effect upon so-called practical pursuits, or on account of its trade or industrial value; such it has, without question, and children having received good manual training will be better fitted for "practical" occupations than those whose training was one-sidedly formal. But it cannot be the aim of the public school to make artisans of all pupils. On the other hand we may even go a step further: in this age when machinery is superseding hand labor with growing rapidity, we shall often observe that much suffering is caused by this transition to new modes of production, for those who are thrown out of employment, and who find it difficult to re-adjust themselves to the new conditions and to new and different lines of work. It may safely be assumed that children who were educated in schools where their manual dexterity was developed more or less parallel to the intellectual training they received, will be better able than their fathers were before them to adapt themselves to the changing phases of industrial evolution, both by having a better mental grasp of the situation, and by having acquired skill and a mastery of tools and materials along various typical lines of activity. But this result, while natural and welcome, may here be considered as incidental; it is not the first and foremost aim of the movement on behalf of manual training. This aim is purely educational. Manual training, in this sense, is valued as an *element of culture.*

Nevertheless, even the "practical" result has its educational significance, inasmuch as a man can be called fully developed only in proportion to his fitness for his life's work.

Yet, with educators, manual work is pre-eminently a *form of expression,* a mode of "externalizing the internal", as well as a *method of gaining experience,* of "internalizing the external". Manual expression is valuable to all; with many it is their only form of successful self-expression. A cathedral or a Brooklyn Bridge are as much expressions of noble thoughts and feelings, as is Milton's "Paradise Lost." Again, all of us have our concepts enhanced in clearness and efficiency thru manual experiment; some are forever unable to grasp the world around them without such.

Manual training leads necessarily to construction, or rather educational manual training must essentially *be* construction. As construction, it is dependent upon observation and experiment, the two great factors in the development of the mind towards self-activity and creativeness. As a matter of fact, all construction is experiment. It has recently been again emphasized that many machines invented by man have their prototypes as to form and functional structure in natural objects and organisms.

Said a writer in the "American Machinist": "All ideas are new but once; man cannot always be original, and he soon acquires the habit of absorbing ideas relating to his business. He sees how beautifully some mechanical device accomplishes its purpose, or how fitting is some shape or form, and unconsciously stores these ideas away in his mind and draws from them when needed. Probably the inventor of the hay-tedder made no extended study of orthoptera, but only put to a practical use the action of the grasshopper which he had seen all his life. The hypodermic syringe is a pointed application of the principle of the sting of a bee, and it is reported that a successful tunneling system was designed from the boring apparatus of an apple-worm. A suspension bridge represents the highest mechanical, mathematical, and engineerink skill, and yet it is only the adaptation of a spider's web to man's requirements. Of all pumps the most common, the most reliable, the most efficient is the heart, and there is a significant parallelism between its form and the designs for some modern pumping machinery. Whoever has 'caught a crab' while in bathing will remember the powerful grip of its jaws, and the inventor of the hay-carrier seized upon the idea as the crab seizes upon the toe of the bather.

"The pillar of an upright drill resembles a tree trunk in size and shape. It has limbs and branches. Naturally then, the base, where stability is required, is modeled after the foot of the trunk. . . .

"Sometimes the influence of natural forms appears in a real or fancied resemblance to some object which gives it a name, as an alligator wrench or a whaleback barge. . . . The tailor has his goose and the spinner his mule, and there are donkey engines and pony presses. The head of a ram is so manifestly adapted for butting that the ancient Romans carved it on the ends of their battering artillery, and while we have today abandoned the form we still retain the word 'ramming'.

"Machines have bodies, feet, arms; they are provided with wrist-pins, knuckle-joints, and elbows, and occasionally they break a rib or a leg like their human relatives. This shows the effect of natural forms on mechanical designs; not that they are copied literally. The tree-trunk is not reproduced with the bark on, or the elephant's foot with the toe-nails,* but they are adapted to man's purpose, conventionalized, as they say in art.

"In decoration, nature's influence is even greater. 'The heavens above, the earth beneath, and the waters under the earth' all lend their products toward decorative art."

The final result in the evolution of a machine is sometimes the outgrowth of a long series of observations and experiments, and the perfect machine has had, in the course of its evolution from crude beginnings, many less perfect forerunners in ages gone by.

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*In designs for chairs, tables, etc., the toes of the animal whose foot furnishes the motif, are often carefully carved. G.

Thus it is clearly seen that inventions are the effect of intelligent study of nature, sometimes perhaps of a more or less unconscious absorption of natural facts, combined with the ability of imaginative and constructive expression. While certainly invention depends upon imagination, the latter draws its impulse from observation; and science and construction go hand in hand.

That human constructions are to a high degree imitations of nature, and as such the results of observation and experiment, sometimes of many successive generations, has been demonstrated long ago. Huts and houses are artificial caves; bridges are imitations of natural arches, trunks of trees or fallen rocks; a Gothic colonnade is a palm forest of stone; implements and weapons are for the most part direct copies of natural objects which first served as crude tools in the dawn of civilization. Here is shown the relation of manual work in its constructive sense to other branches with which it forms a conceptual whole.

Considered from another viewpoint, manual training possesses a value which proves it an indispensable helper in general education, at the same time demonstrating its "practical" utility apart from mere industrial or trade interests in a narrower sense. A physician, e. g., whose hands have not acquired skill, whose eyes and ears have not been trained to be acute and quick, will be much less fit for medical and surgical practice than one who has received this training; and in recording observations, the scientist will find well-trained sense-organs, and the ability of graphic expression as helpful as he will find constructive skill in the arrangement and construction of his experimental apparatus and his instruments. Even the philosopher may be benefited by having acquired an aptitude for graphic representation of abstract thought. It may be maintained that such skill will be acquired at the time of professional preparation; but not so. At the age when such specialized training is received, the senses and limbs have lost some of their original pliability and plasticity. The great difference in professional effectiveness we observe in the callings here alluded to, may readily be traced back, in a measure, to differences in the early opportunities for sense and motor training, apart from natural aptitudes.

Manual training, in the educational sense, does not mean the addition of a little sewing, or wood work, or the like, to an ordinary course of study. That would produce an incongruous patchwork. There must be a co-ordinated system of studies and occupations: studies finding expression in occupations, and occupations forming a basis for intellectual work. Each branch may be considereded as one of many tests by which the children's individual abilities can be sounded, as has been shown in previous chapters. It will then be found, what everybody indeed knows in a general way without always allowing himself to be guided by this knowledge, that all children differ in various degrees, and that each one may require a different point of vantage from which to reach his highest interest. Instruction may have to be compounded like unto a medical prescription, in doses containing varying proportions of ingredients, so as to fit individual cases. Some children are distinctively manual and non-literary, others literary and non-mathematical, etc. A uniform standard is impossible. The traditional distinction between "illiterates" and those who are called educated, does not cover all considerations.

On the other hand, every child will be benefited by being led to contemplate the world around him from various viewpoints, each branch, or study, or occupation, representing in reality but a special point of view from which the entire world of knowledge and human existence is approached. He will thus acquire a stronger hold on, and a clearer conception of, the world about him, and learn to appreciate the viewpoints of others that differ from his own peculiar attitude. This again, has an ethical significance.

In an organized system of studies, manual training is rather a method of presentation than a separate discipline. Even special so-called manual occupations must be judged with reference to their educational value by determining their influence upon the building up of clear concepts and upon the development of the ability to control and organize sense-impressions and motor-impulses. The "manual method" represents the objective, experimental, and creative (constructive) side of all school work; it ought to pervade all branches. The making of a thing, even by way of crude imitation, intensifies its conceptual identification and recognition.

Manual work strengthens the knowledge of natural forces and materials; it illustrates the evolution of civilization by mediating a knowledge of typical tools and occupations, which in turn is made more vivid and effective by the fact that it is not merely theoretical knowledge, but is substantiated by practical tests. Tools are nothing else than artificial hands, or elongations of our hands, invented by the brain to enlarge the sphere of manual effectiveness; or, as in the case of telescope, microscope, and telephone, artificial sense-organs capable of enormously increasing the power of the receptive senses. Man, thru the co-operation of brain and hand, advances spiritually towards the very limits of time and space, in the microcosmos as well as in the macrocosmos.*

Manual training mediates to the child a far greater circle of experience than he would otherwise become conscious of. Care must be taken that these experiences, while they will naturally remain within narrow limits, be *typical*. A mechanical laboratory (using this general term so as to include all kinds of manual work proper, so-called, such as shopwork, sewing, cooking, etc.), to be an educational institution, must in a way be an adjunct to, and co-operate with, the physical and chemical laboratories. The work in all of these laboratories will virtually answer identical purposes, i. e., it will mediate knowledge and experience, thru the experimental method, gradually assuming a more and more differentiated, technical or scientific character, respectively, in proportion as the pupil advances in age and maturity and gets ready for specialization. In the lower stages, the work will serve to satisfy the natural instincts of children to build and construct. Manual work, in this sense, is also constructive play. The value of the play element is a topic by itself, and has been referred to in the chapter on the kindergarten.

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*Cf. also Dr. Paul Carus, "The Philosophy of the Tool", Chicago.

Manual training is *sense training*. It exercises all senses and constitutes each into a helper to all others. It trains eye and hand, and makes both mutually subservient. It recognizes the immense value of the much-neglected sense of touch which is, in point of fact, the fundamental sense of which all other senses are but modifications and ramifications, or, if you please, differentiations, and with which all fundamental, racial sensations are intimately connected. Above all, it brings the *motor sense* into play for the gaining of exact conceptions. Few people realize how deeply the motor element enters into the formation of our ideas, and how much more accurate our concepts are, how much more apt to associate organically with one another, for containing motor elements. At birth, all brain cells which the individual will ever possess, are already present, partly in an undeveloped state; a majority of these are motor centers—if they are not exercised and stimulated they will atrophy. If this happens, of course, no association fibres can issue from them to connect with other centers. Even tho they be developed partly, the association tracts will be less easily passable than if the cells had received their proper share of exercise. Associations, however, form the basis of apperception and judgment; the more there are of smooth association tracts and of connected, i. e., organized, functioning centers, fit to receive and connect impressions, the higher developed the brain will be, the more perfect our concepts, the more circumspect our judgments.

Thought is connected with motion. Language is, indeed, a vehicle of thought: it expresses and conveys thought not only, but clarifies, crystallizes thought, makes thought more definite, more distinct, more exact. Max Müller went so far as to maintain a parellelism, or even identity, of language and thought. But the first language, as a means of communication, had nothing to do with "lingua", the tongue; it was *gesture language*. Gesture language is as universal as it is practically the same, that is to say, using the same symbols, with a few curious exceptions, all over the globe. Even now, when we use "lingua-language", gestures will accompany and intensify speech, and sometimes be substistuted for speech. Every thought, however, is connected with some form of motor concomitant. Motor training may create, and will certainly stimulate thought, and make thought more concrete and true.

Manual training, further, being a recognition of the play instinct, is also *exercise*. It sets free those natural and valuable impulses which induce the child to try his strength and skill in a large number of various activities. It helps towards a completer self-projection of the child upon his environment, towards his more perfect self-realization. At the same time, it turns into useful channels those activities and tendencies which may, when left unemployed, atrophy and cripple the child's soul; or, when left unguided, may lead to destruction and crime. It converts them into constructive force.

The *remedial function* of manual training has often been demonstrated in reform institutions for criminally disposed children, and in the treatment of deficient and degenerated persons generally. The reason is obvious from the foregoing argument.

When it is remembered that, in manual training, the play instinct of children receives a recognition, we shall understand that it must partake of the character and function of play; in other words, it must not be too formal and should, at least as far as younger children are concerned, never be introduced as a tedious, pedantic task. There must be an element of freedom and variety, an appeal to children's spontaneous interests. By watching children's play, with building blocks, sand, "mud", constructive toys of all kinds, we can learn many valuable lessons, as to what manual training should do for them. It is for this reason that the traditional "sloyd" does not possess the virtue ascribed to it by many. Sloyd, in the first place, restricts the child as to the material and tools used, and then it insists on too pedantic a course of models, requiring a high degree of patient toil, of accuracy, and of finish.

As regards patience, young persons have, and can have, but little of it, and when it is demanded beyond the limit of their capacity, or of their interest in the work in hand, their pleasure will be lost and they will hate the task as well as the task master. Some may regret this fact—it is an indisputable fact, nevertheless, that children will never do anything "with a will" that does not appeal to their interest in some way. The abstract ideas of duty and training have little charm for them, and it is the teacher's function to arouse the child's natural interests, or to create new motives of action. But at his best, the child cannot work long over the same thing—he cannot sustain his attention.

And then his standard of accuracy and finish is not the same as that of the adult. It is futile as well as unjust and cruel to force the adult standard upon him. There is no need of demanding that every piece he begins must be finished to be exactly like the model set before him. It is more essential that he should learn to *begin* right, and this can be better accomplished by his trying his hands on a large number of experiments than by restriction to a few pieces in a so-called series. "Logical sequences" of exercises have little value in teaching the young whose development is irregular and unsymmetrical in outward appearance. Let us have the young student try new pieces as many as possible. Let us adjust the "course" so that *approximate* results are acceptable. After the child has learned to make a good start, his constructive instincts will lead him on to finish each piece to his own satisfaction especially when he sees some purpose in it, and were it but a make-believe purpose, a play interest.

The development of real accuracy is very gradual and corresponds to the child's degree of experience, and of his power to co-ordinate muscular and nervous activity. This is a matter of nervous development, and has been referred to in a previous chapter. It is sufficient if the product of the children's efforts represents the swing and character of the object which serves as a model or prototype. Exactness will be required also, parallel with a growing appreciation of the necessity of fitting parts together; this illustrates the value of constructive exercises, properly so called, as compared with non-constructive work. It may sometimes prove helpful to have certain pieces produced by co-operation, several pupils combining in their construction. This will bring home to each the necessity of exact fitting more strongly even than when one works alone.

Truly there are children who exhibit abnormal symptoms and who need special consideration. Aimless scatterbrains that flit from one thing to another can only be cured by finding some point of vantage thru which to reach their supreme interest. But those who cannot be reached at all are fewer in number than those who are at an early stage discouraged because too much is expected of them. It must also be remembered that talents differ, and all will not be able to do technically accurate manual work even after practice, just as there will always be some to whom spelling and composition will remain unfathomable mysteries all their life. It is the variety of tests of which mention has been made before that will enable us to do justice to all.

If reference be made to abnormal children to whom ordinary measures will not appeal, it may be stated that they need the curative treatment which can only be devised by the co-operation of the educator and physician, notably the alienist.

For reasons similar to those enumerated in regard to accuracy, variety of material (cardboard, wood, wire, tin, clay, canvas, etc.), as well as of tools will add to the attractiveness of the work. Besides, there will be possible in this way a many-sided experience as to natural forces and man's conquest of the same which could not be obtained if we were to restrict the exercises to a one-sided series.

In progressing from elementary to higher stages of work, it is well to bear in mind what has been said in the previous chapter on the gradual evolution from "symbolism" to "realism".

Manual training, as an element of culture, includes *art culture*. Or rather art is the redeeming feature of all constructive work; it lifts it from the lower level of mere mechanical drudgery to the higher plane of creative activity; it represents the finishing touch, the liberating element.

The art idea of construction has perhaps never been so fundamentally expressed in words as by Walter J. Kenyon in an introductory article to the first number of the "Manual Training Magazine" years ago. He said:

"There is probably more of esthetic possibility in unadorned construction than we are wont to recognize. All spontaneous expression, be it under skilled guidance, will ultimately make for beauty. . . . Wherever a creation is the expression of an eager soul, undriven save by native impulse, it makes towards art, whether it is decorative or not, and whether it be slightly to the unenlightened or not. Art is saying to your brother what God says to you. The vehicle of expression does not signify. . . . FUNCTION IS THE BASIS OF ALL ART. . . . Art cannot transcend mathematics, whether it outreaches mathematical research or not. Whether it be a question of music, or color, or form, it is a question of interval. Interval, in turn, determines proportion. And proportion subserves function."

The art idea should enter into all work, and direct it towards the ideal of beauty and fitness. What is most perfect as to fitness is also most beautiful in its way. A table, for instance, constructed on the most simple lines of fitness for its purpose, is also the most beautiful piece of furniture of its kind. It is this thought which has now revived a taste for the so-called Old English and Mission styles in furniture.

Yet, art has its individual claim as the highest form of self-expression; it strives for typical, eternal creations. It projects human nature upon the background of infinity and eternity, and relates the finite human life with universal existence.

Art expression, however, is plainly dependent upon proper sense-training and manual culture as premises, or prerequisites.

These suggestions have a bearing not only upon elementary education, but on secondary school work as well, altho here there is a greater need of differentiation. The elective system, as characteristic of adolescent education, has this significance that the individual differences of the pupils now receive more distinct recognition, and that each one is allowed to construe his world conception from the standpoint of more specialized aptitudes. Thus, a manual training high school may have a true function; but the general high school should certainly not be devoid of manual training features in an educational sense. More will be said in the last chapter of this book. It needs to be emphasized, however, that it is better to work a system of manual training from the elementary stage up to the secondary stage, than to work down from the high school with its specialized aims to the district schools, as has too often been done. The reasons for this contention are obvious.

CHAPTER VII

Kinds of Manual Experience and Expression

THE following series of suggestions is informally presented and naturally fragmentary. It is largely based upon practical work which has been actually done, under the author's supervision and elsewhere; but a careful selection has been attempted, in accordance with the principles pronounced in the previous chapters. Some of the suggestions have not yet been thoroly tried in school practice, but grew out of the general view of the subject as it appears in the light of the argument upon which this volume is based.

The work may be considered under four heads:

(1) Materials employed;
(2) Typical occupations and tools;
(3) Illustrative work, that is such as will be intimately and methodicaly connected with other branches;
(4) Assembled work.

This arrangement does not imply a *succession* of exercises in this order; for the work will have to be arranged in pedagogical order. The schedule will serve merely as a help in surveying the work.

The four groups suggested here are closely interrelated inasmuch as the first and second are in the nature of experiences which often will illustrate facts from other branches, such as science and history; and illustrative work will often have the character of assembled work.

The use of a *variety of materials* will illustrate different natural forces, their reaction upon human effort, and the means of utilizing them. Thus, their employment will be in the nature of physical experiments, and be subservient to the formation of scientific concepts. Again, the *typical occupations and tools* will elucidate the history of civilization, and in this wise connect closely with history and geography, and in a measure even with literature.

How manual work is a valuable form of expression has been set forth before. Complete expression requires the employment of various forms simultaneously, or rather in close succession. The same idea may be expressed in different modes, clay, wood, drawing, etc. Form and size can be best expressed by modeling and construction; light and color by drawing and painting. There are other qualities that cannot be expressed in such form but for which music or poetry are needed: thus, the children will receive a training in the meaning of adequate expression as a function and an art.

It may be well to speak in passing of the enormous value of *drawing* which enters largely into all kinds of manual expression and productive activity. It is a necessary adjunct to the study of natural objects; without it construction would be hazardous; it will enhance the work in composition, literature, history, and geography. Mechanical drawing as such deserves careful attention, to be preceded in the lower grades, where only a small degree of accuracy can be expected, by a crude kind of mechanical sketching. Boys and girls alike should learn to read a working drawing, and to produce one, if it were only to become conscious of the principles of construction and design. Then, of course, the conception of geometric form, and of mathematical relations and laws, must be completed by the application of drawing, even tho the fundamental cognitions in this province of knowledge will have to be based upon the direct handling and making of *bodies*.

Design, again, while based upon mathematical relations, is principally concerned in harmony of arrangement, proportion of parts, and fitness for its purpose, and depends upon invention and the awakening of the sense of beauty. Taking its origin in mechanical construction, it assumes the function of beautifying decoration. From it, indeed, all truly artistic forms have derived their being, for altho art is intrinsically a form of expressing a thought or feeling, its object is primarily to add beauty to a thing which is otherwise utilitarian. Thus, designs were carved on knife or sword handles; the monotony of walls and floors and ceilings was broken by decorative effects, and carvings and statuary helped to beautify the outside and inside of buildings. Or, we may assume a twofold origin of art: first the desire to *express,* which led to picture-writing and kindred lines of work (even modern paintings of the highest type may be construed as perfect hieroglyphics, intended to express and communicate a thought); and then the desire to *beautify,* which led to decoration. But the two lines of artistic activity are closely allied with one another, since even in the early times picture-writing, or hieroglyphics, were used with decorative effect, and decoration at its best is always used to express a definite meaning and will be appropriate to a specific purpose.

Be that as it may, all decorative design is based on drawing.

Design, as well as drawing without design, includes *color.* Pencil drawing is essentially concerned in outline. As soon as we use color, we deal with masses. Inserting color into outlines is not a very commendable practice altho it is quite common. Colored pencils, as they are a temptation to outline, have therefore their drawbacks.

The use of washes may be advocated as early as the kindergarten. We may begin with ordinary ink washes, then using prepared water colors. Design can also be expressed by the use of colored papers, in folding, cutting, and pasting, even using blue prints to effect. But while some simple exercises of this kind may be done in the youngest classes, this work will reach its true function in the higher.

Design includes *carving.* As design, it is art work; in its execution, it is tool work in the sense of technique. Carving, therefore, partakes of the character of both lines of expressive activity, and represents a blending of manual and art work. And as it eventually leads to the construction of beautiful articles of use, such as carved boxes, benches, chairs, etc., it will serve to connect the two departments, if departments they be, quite closely.

As to the material for carving, the following sequence may be suggested: soap, clay, plaster, soft wood, hard wood. Attention may be called to the valuable training and pretty effects afforded by the German "Kerbschnitt" (notch-cut) exercises. There are also valuable exercises in beaten brass and similar design work.

Another occupation of which more will be said later, is also in the nature of design and will require artistic thought and invention, viz., weaving.

A large share of the art work will be *modeling in clay*. Without entering here into the details of this work, it may be remarked that it is fundamental in gaining artistic power and conceptions of form, besides being admirably fitted to the use even of the youngest children. It also leads over to other occupations of a more "manual" and constructive type. It appeals most fully to the primary sense of touch.

One of the first things to be mentioned is the *sand-table* which ought to be found in every kindergarten, primary, and intermediate room. Apart from the free representative play of which it will allow, it will serve, as nothing else will, to illustrate all essential geographical and physiographic facts on a small scale. Besides, it will form the basis for illustrative and assembled work in the study of different countries, and in history, such as will be referred to later in this chapter. The sand-table in the room will be fitly supplemented by the sand-heap outdoors, in the open air playground which ought to be more organically connected with all the work of the school than has heretofore been attempted.

For manual training proper, the use of a great variety of materials, representing a large circle of experiences and occupations, is advocated. Among the material which is desirable may be mentioned: sand, clay, paper, cardboard, wood, tin, wire (lead, copper and iron), iron, and the materials needed for domestic work of various kinds.

Again, speaking of the *occupations* to be represented, and their successive introduction, we may take our clue from the historic order in which they were evolved, as this delineates the successive stages in intellectual grasp, and nerve and muscle control, exhibited by the human race in its gradual development of civilization—a development which is paralleled in the child's individual evolution. This does not mean, as has been shown before, that we must disregard the child's present and immediate environment and interests, in other words, his apperceptive basis, and force him to be a primitive man and do primitive things—but rather to follow his natural line of growth and allow him to do modern things in a primitive manner. For example, the child may be led to build and construct in simple fashion, but not necessarily Eskimo huts or an Egyptian chair, but modern dwellings in a simple and perhaps symbolical style, and doll house furniture. Or he may weave and sew, not necessarily an Indian blanket or wigwam, but a carpet for his doll, or a tent for an outing camp. Let us not forget that even apart from the apperceptive basis upon which we must build, the modern child is after all a *child,* and the savage adult was an adult, which means quite a difference in strength, co-ordination, and purposeful activity.

In the development of the child's movements, we must consider several distinct periods. Up to seven, the *reflex* movements (spinal cord movements) prevail. The whole body, and the whole limb, are in motion. The hand is not yet really a human hand—the thumb is more like an ordinary finger in the beginning. We may again be reminded of the powerful grasp of the baby who can support his own weight for a surprising length of time, and this grasp has been likened to the monkey grasp. The movements prevalent at this period are such as kicking, dropping, digging, piling—blocks and sand, for instance; again, swinging, running, throwing. Cutting and folding are still beset with difficulties. Whatever requires nice adjustment, with the help of the sense of vision, is beyond the baby's power; the sense of touch is far ahead of that of sight. Children are far-sighted to the age of eight.

This being the symbolic, or play, age, a symbolic scale and symbolic use will characterize all work.

At six, simple tools can be introduced. The hand is at last perfectly straight; yet the movements are still whole arm and shoulder movements. The fingers and hands are but partially free from the lower simultaneous impulse. The rapidity even of hand and arm movement is only 60 per cent. of what it is at sixteen. Writing and drawing at this age imply an intense strain, and such work, as far as it may seem unavoidable, should be confined to blackboard exercises.

At seven, sense impressions predominate in the movements, and the mere reflexes are under control. We should now attend particularly to the training of the sensory responses. Partly for this purpose, partly because of the greater degree of muscular co-ordination possible at this stage, we may begin to introduce tools of greater complexity, again following somewhat the order in which the tools were differentiated in history from the first primitive implements. The club was, perhaps, the primordial form of all human tools—the branch of a tree, or simply a stone. Of all manufactured tools, the hammer comes first, and it was from the hammer that all other tools were developed. A hammer with a sharp edge became a knife; a pointed knife gave origin to the needle. Likewise in children's work, let us begin with crude tools and crude work, and work up to differentiated tools and diversified tasks.

At the age of eight sensory education can be diversified and emphasized thru the introduction of simple selected exercises from many different occupations; the motor education cannot yet employ special groups of muscles and nerves, but must still be more general and elementary. One of the dangers of this period is from overstrain; this is, as will be remembered, the fatigue period.

In the next year, there is great gain in precision, but mature accuracy in hand and finger control is not reached before nine or ten. Application of this fact can easily be made upon the traditional methods of teaching writing, drawing, and sewing to young children.

At eleven, the free use of the wrist movement is gained, and from now on exercises dependent upon this may be introduced. Games of skill are valuable at this time; and generally there must be training with respect to muscular quickness. As this is the pre-pubertal period, the "wild time", full occupation is necessary so as to lead the surplus activity into constructive channels.

The age of twelve marks the final and consummate transition from make-believe to definite ends. The child now desires to make useful, real things. This is the shop work period, when sewing proper also has its place.

* * *

The *primitive occupations* are building, tool making, pottery, sewing and weaving, planting, cooking.

The child delights in *building*. Building blocks, first purely symbolical, in other words, capable of representing everything in free play, and then such as can be used for architectural constructions, form one of the most widely accepted and welcome playthings for children. The blocks of the Fourth Gift and their divisions and multiples can be employed for a variety of instructive exercises in building and construction. The children may make doll houses and furnish them by crude carpenter work. It is well to remember, however, that the scale should not be miniature, but sufficiently large to allow of whole arm movements in the making. The tools to be used now would be hammer, knife, awl, drill. A primitive drill with bowstring may be easily constructed by the children. Practice in whittling would fitly follow the first cruder exercises.

The knife develops into the saw, and there is a possibility to introduce some coarse sawing even in the lowest grades. The scroll saw may become a valuable adjunct at this stage, and its use may be perfected thru the grades.

A more complicated course in wood construction, combining the use of all foregoing tools and materials, may be taken up in the older grades of the school, care being taken that there be no excessive indulgence in the formalities and technicalities of the trade, and that ample opportunity is afforded for free spontaneous invention.

All this time, some primitive tools may be constructed of wood, wire, and like material.

Wood, indeed, is only one of the material bodies with which the experimenting child should occupy himself. Wire lends itself very readily to the making of many interesting forms, and is particularly helpful in the development of the sense of touch and of muscular adjustment. In the lower grades, many forms of symbolic size (hooks, chains, etc.) may be bent in pliable lead wire, using the fingers and a little mandrel of wood for forming. In the next step copperwire of increasing thickness may be substituted, and with the help of hammer and vise more realistic articles can be fashioned. Later the child may fashion a needle of copper wire; and following this, a steel needle may be introduced for the use in sewing. The wire work may lead up to forging (first cold, using lead; then hot, using iron and forge) when actual implements may be made (chisel, chain, pokers, etc.), and to other kinds of metal working. In the "grammar" grades and the high school, a course in actual tool making would eventually complete this course.

Pottery is the industrial side of modeling. The children will delight in shaping vessels of all kinds, Indian like, first with the fingers alone, and finger marks for decoration. Then in the next grades a simple potter's wheel (the first machine invented by man) can be used for more exact work, and decorations may be in design and color. The making of a potter's wheel of simple construction, by the way, would be a suitable exercise in the shop work of higher grades.

Sewing and weaving can be summed up under the general head of the *making of household articles,* and will form one group with basket making, bead work, netting, plaiting, string work, etc. All these are primitive occupations, largely invented and practiced by primitive woman, and will fitly illustrate the civilizing arts, besides being admirably adapted to the possibilities of children. But again it must be understood that this primitive work need not be altogether an imitation of savage work; it may largely be adapted to the modern environment and the modern interests and needs of the child, in addition to its illustrative features.

With children the coarser work should precede the finer.

Weaving, with reeds, raffia, chamois strips, ribbon, cloth, worsted, shoestrings, should be the forerunner of sewing, and a primitive loom, on a fairly large scale, may be employed for the manufacture of simple fabrics. As a continuation of weaving, darning and knitting will introduce sewing proper.

Sewing, requiring rather fine muscular adjustments in eye and hand, should first be quite coarse and crude. Accurate stitching on a small scale, which is usually offered as the first "logical" exercise in sewing, the making of "samplers" and the like, should be avoided; it is not only injurious but an actual waste of time. Begin, perhaps, with a big bone needle (made from a crochet needle), coarse canvas and burlap, and large threads. Cord and worsted threads will answer the purpose. And have the child *make* things, in rapid work, even with colored threads—bags, doilies, dresses for a large doll, in savage or crude fashion, with as few stitches as necessary. It is immaterial at this stage whether the child knows the names and functions of different stitches. There are many suggestive courses published in raffiia and cord work, basketry, netting, etc. The intelligent teacher will have a wealth of applications of the general principle to choose from.

In parenthesis it may be said that even work of this nature, altho it appears pronouncedly industrial and "practical", partakes in a singular way of the nature of expressive work. Those who can read the meaning of the patterns and methods of Indian basketry for instance, will be surprised to find that there is a significance in every variation of form. On baskets and blankets, totemic figures were worked in a multitude of ways. Picture-writing as ordinarily understood was "preceeded by the use of material objects which afterwards were reproduced graphically in paintings, cuttings and carvings."*

Among these may be here mentioned: knotted cords and objects tied, notched or marked sticks, and wampum, the latter representing bead work. "A peculiar and ingenious mode of expressing thoughts without pronouncing or writing them in language is still met with among the Indian shepherds in the Peruvian Cordilleras, tho it is practised merely in the accounts of the flocks. This system consists of a peculiar intertwining of various strings into a net-like braidwork, and the divers modes of tying these strings form the record, the knots and loops signifying definite ideas and their combination the connection of these ideas. This system of mnemonic device, which was practised by the ancient Peruvians, was called quipu, and, tho a similar knot-writing is found in China, Tartary, eastern Asia, on many islands of the Pacific, and even in some parts of Africa, yet in Peru, at the time of the Incas, it was so elaborately developed as to permit its employment for official statistics of the government. Of course, as this writing gave no picture of a word and did not suggest sounds, but, like the notched sticks, merely recalled ideas already existing, the writing could be understood by those only who possessed the key to it; but it is noteworthy that when the Jesuit missions began their work in Peru they were able to use the quipus for the purpose of making the Indians learn Latin prayers by heart." The descendants of the Quiches still use a modified quipu, or rather a sort of bead work, for numeration. "They pierce beans and hang them by different colored strings, each of which represents one of the column places used in decimal arithmetic. A green string signifies 1000; a red one, 100; a yellow, 10; and a white refers to the 9 smaller digits. Thus if 7 beans are on a green, 2 on a red, 8 on a yellow, and 6 on a white string, and the whole tied together, the bundle expresses the number 7,286." Prof. Terrien de Lacouperie reports: "The Yang tung, south of Khoten, and consequently north of Tibet, who first communicated with China in A. D. 641, had no written characters. They only cut notches in sticks and tied knots in strings for records."

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*This passage and a few following, are quoted from Garrick Mallery's study of "Picture Writing of the American Indians", Annual Report of the Bureau of Ethnology, 1888-89.

In his fantastic story, "The Man Who Would be King", Rudyard Kipling has one of his adventurers speak of a "string talk letter, that we'd learned the way of it from a blind beggar in the Punjab." And he to whom the man tells his story makes this comment: "I remembered that there had once come to the office a blind man with a knotted twig and a piece of string which he wound round the twig according to some cipher of his own. He could, after the lapse of days or hours, repeat the sentence which he had reeled up. He had reduced the alphabet to eleven primitive sounds, and tried to teach me his method, but failed."

The knots tied in handkerchiefs by forgetful people to this day, to remind them of things they want to remember, are a relic of this ancient method of record. And it suggests itself that the various primitive occupations mentioned might be utilized even with our modern children in a similar way, at least in the pre-writing period. It shows that this pre-writing period may not be entirely devoid of record-taking.

Considering other occupations fitted for children, *planting* deserves much more attention than it receives even now when the school garden idea has been broached. Planting has a close connection with *cooking*, and should be related to it in part. School gardens ought to be a regular appendage to every school. They should have a use not only for the study of plants as such, as a help in nature work, but also for the raising of plants and vegetables for consumption in kitchen work. Cooking is also intimately related to physiology and hygiene, and a rational correlation of these subjects will prove far more beneficial than the teaching of a bogus physiology from unscientific textbooks.

That cooking is not merely an upper grade and high school study for girls who don cap and apron in effective coquetry, but can be introduced systematically and with good effect in the lowest grades, has been demonstrated in progressive kindergartens and primary classes.

Let us be reminded that planting, as explained before, is one of the most interesting experiences for the young by which to learn one of the first fundamental conditions upon which human civilization rests. The transition from nomadic life to agriculture marked the beginning of settled society in the history of the race, and it is well that this stage in the humanizing of the child should be well improved.

On the general value of domestic study for girls, a wise mother, in reply to the question, "If you had girls of your own, would you give them the same education that you had, or would you try to improve upon it?" is quoted by Jeamie Josephine Starr, in "Good Housekeeping", as saying:

"I shall make them (the daughters) feel the dignity of hand labor, and teach them not to despise household work, by beginning in early childhood to teach them to sew, to be orderly about their own possessions, to take the responsibility of some light household duty, and hold them to its correct fulfilment. When they leave school or college, I shall entrust to them, by degrees, as much of the home management as possible; but I shall insist on an early acquaintance, in childhood and girlhood, with some details of homemaking; because, however brilliant a girl may be mentally, she needs the practical knowledge which the management of a home can best give and if she acquires a distaste for household affairs thru lack of habit and training, no amount of brains will help her over the knotty problems of domestic life, till she learns how to do things herself, and an early training, acquired most unconsciously, will save hours of unhappiness. I know of so many college-bred women and teachers who loathe housekeeping, even in homes of their own, because they never learned how; while to me housekeeping, because I understand it, is an interesting occupation—one which forms but a single item in my daily interests, because I learned to systematize and then dismiss it."

Domestic science and practice, it ought to be added, is not exclusively a study for girls. When rightly taught, as the science and art of right living, it is as interesting and valuable to boys. It was a lesson not soon to be forgotten by the managers of vacation schools that boys were as eager as the girls in taking lessons in cooking and sewing, as they were to do shopwork, and not a few surpassed the girls in application and ability. It may be remarked that the best cooks are "chefs", and the best ladies' tailors are men.

Another kind of work well adapted to children is *paper work*. There is the weaving of mats which should, however, be done on a considerably larger scale than is usually done in the kindergarten. "Bogus paper" and linen are other materials which can be used for the same work and have many advantages. With the introduction of scissors, many helpful exercises will commend themselves. Pictures may be cut out and mounted; thru folding and cutting, many forms of beauty may be developed, and much work in design can be done. But the same caution as for weaving should be heeded; avoid small-sized work—it is best for *little* fingers to do coarse work on a *large* scale.

Freehand tearing and cutting is very valuable in art representation, and may be developed into silhouette work. This affords much inspiration for home occupation; indeed all work done in school will find its test as educational work by the effect it will have upon the conduct of the child at home.

Cardboard exercises, leading up to the essential elements of decorative pasteboard work and even bookbindery, will lend their aid to geometrical construction and demonstration. Or rather, out of the concrete experience of this kind of work will gradually arise an understanding of mathematical relations of form. Then, it will be connected with other studies, by being made subservient to them. Boxes and trays may be made for seeds, specimens and collections of all kinds; files and portfolios, to keep pictures and clippings, etc.

Many of the forms built in cardboard may be repeated in the workshop of the higher grades, in *tin;* while there will be few new form concepts developed in this way, there is a set of new experiences as to material, tools, and method.

Much of this work, as has been shown, will serve as *illustrative work,* by being intimately interwoven with other branches, so as to establish a system of associations and apperceptive relations. We may once more be reminded of the value of motor images, or memories, for the building up and reproduction of our concepts.

Special work may be required in special branches. Drawing, e. g., is the common servant of geography, history, nature work, etc., etc. Map drawing, the making of relief maps in papier maché, salt, putty, and other material, will enhance the work in geography; pictures and products will be collected, stored and mounted.

Here are a few suggestions from the practice of some progressive schools:

I. Articles for use in the school made with easy stitches, e. g. overcasting, braiding of soft fibres and coarse weaving.

II. Work in sewing is connected on the side of clothing with the social work; skins, furs, and their treatment; study of wool; all primitive processes of preparation from raw wool to woven cloth. Technical work: making of work bags.

Knotted cords, plaited mat, bow and arrow, knotted bag, wigwam, moccasin, snowshoes, bead weaving, canoe, baskets.

III. Textile work: textile industry taken up from social side in each race studied. Technical work: characteristic costume for each race; equipment for work bags, e. g. needlebook and pin cushion. *Alaska*: course in simple tie knots, frame for fishing sloop, net for fishing sloop, frame for bead weaving, bead weaving. *Scandinavia*: milk wagon, Viking ship. *Switzerland*: Chalet, dress doll. *Lincoln*: log cabin, rough stool and table. *Robinson Crusoe*: baskets, tent, raft, ladder, cable.

And thus it is carried on to higher modes of occupation and an understanding of higher processes of manufacture. These samples of what has been done in some schools cannot serve as models, as every school has its own problem to solve. They are simply suggestive, even in their mistakes.

Assembled Work, by which is meant the combination of separate pieces or kinds of work into sets, or groups, is largely illustrative in character. It will draw upon various occupations to produce a whole. There may also be an assembling from different classes, each contributing its share, on the level of its ability, to the complete production. Thus, one class may build the doll's house; another may furnish it; still another may surround it with a fence and supply it with garden and farm tools for the attached farm yard; a fourth may dress the dolls, supply the beds and blankets, etc. Or an entire farm may be built up; or a set of furniture for a large doll may be made, including pictures and picture frames, carpets (on a half-grown scale) woven, curtains and doilies supplied, and the doll herself furnished with a complete "trousseau" to finish out the idea of complete equipment.

The sand table will be an important basis for another class of illustrative, assembled work. On it there may be built up landscapes and scenery for illustration of countries, customs and historical events. Cities may be outlined, and Indian villages constructed. The human figures may be modeled in clay, or whittled out in wood, and dressed appropriately in various fashions. The houses may be built of wood and clay, or modeled in cardboard. So-called "modeling sheets" may be bought ready drawn at the stationer's. Huts and wigwams may be made of twigs, cloth and chamois. Pottery and implements can be supplied, and mosses, ferns and other plants of proper selection, rocks and soils, will add to the effect and instructional value. The work can be made to grow, by gradual additions thruout the year, or term. Mechanical devices and moving things may be added: mills, water works, processions, workmen at work—driven by sand, water, or clockwork. Models of inventions may be constructed: engines, machines, steamers, bridges, in wood, wire, tin and cardboard. It has been the custom of many high schools, in reading Caesar, to have the pupils make models of the famous bridge across the Rhine. There is a multitude of other things.

The schools that afford their pupils the advantage of a large school yard, perhaps even a real school ground, may transplant some of this work outdoors. Thus the pupils may have their forts and wigwams, their mills and bridges, their mountains and play houses on a semi-natural scale in the yard, and represent with their own persons events and customs of foreign lands or olden times dramatically.

The suggestions offered in this chapter are but fragmentary, it is true. But they will suffice to indicate the enormous possibilities which a well-articulated course of manual work possesses, and the great variety of exercises that may be summed up under this head. This variety leaves ample margin for individual freedom and choice, and for the manifold differences which may exist in the local conditions of schools, or the varying characteristics of classes, or groups of children. There will never be any need of forcing a child into the narrow grooves of artificial and one-sided "sequences". There is enough of the play interest connected with the exercises suggested to make the work attractive; and enough of plan, and practice, and information, thru experience and expression, to bring out the full educational value of manual training.

CHAPTER VIII

The Mathematical Evolution of the Child

ONE of the chief values of the study of mathematics has been found in its universality. It encompasses the entire world of existence. It enables us to bring the most distant worlds and the most minute forms under the scrutiny of the mind, and to organize them all in one grand system of order and harmony. Where words would be clumsy, awkward and circumlocutary, entirely inadequate to mediate a clear and immediate perception, a mathematical formula will be found to express a universal truth in terse and pregnant form. To illustrate this, we need only to compare the statement: "The square of the sum of two quantities is equal to the sum of the squares of the two quantities plus twice their product," with the formula: $(a+b)^2=a^2+2ab+b^2$.

Quantitative relations of enormous proportions can, thru a formula, be reduced to simple forms easily handled and readily understood. The statement of the eternal laws which govern this wonderful world of ours would be very difficult if we were left without the use of mathematical symbols. Thru them, we can arrive at the highest abstractions. Mathematics has therefore proven itself an indispensible helper towards a philosophical conception of the world and its forces. It is a ready tool of the thinker, and he who has not learned to think in abstract mathematical terms will never reach the mountain top of thought from where a universal view may be taken.

No wonder that when the ancients, from early crude conceptions, had worked out the science of mathematics, as the first of the exact sciences, they exalted it into a philosophic system which they imagined would solve the problem of existence. Magic powers were attributed to numbers, and even Greek philosophers built their world conception upon mysterious numerical relations. What had been merely a tool for the training of the mind in mastering the thought-forms of space and time—what was not in itself concrete existence, but a symbol of relations—assumed the semblance of reality and developed a ghost-like substantiality which has haunted our minds ever since the time of Plato. How little of concreteness number has to us, how clearly it manifests its symbolical function, will become evident when we probe into our numerical concepts and ask ourselves how far up in the scale of number we have any clear notion of quantity. Who is there that can readily recognize 100, or even 50, yea, 10, without counting, or grouping, the units? And yet, we manipulate millions and hundreds of millions. This is a purely abstract function.

If we apply these facts to the mathematical side of instruction, we may have to admit the unquestionable and prodigious value of mathematics in the training of the faculty of abstract thinking. Yet, we should avoid falling into the error of confusing mathematical symbols with realities. Again, the faculty of abstract thinking is of slow growth, and we must not attempt to force it before its time. The geometry of Euclid was not created until ages of civilizatory efforts had been lived thru by our race, and before there could be any science of number, there were crude number superstitions coupled with the conception of quantity. These superstitions are not yet entirely vanquished; the curious dread many uneducated people still have of the census, and the beliefs still haunting many persons' minds with regard to the mysterious powers of such numbers as 7, 3, or 13, are sufficient proof of the survival of these ancient notions. The symbol which was destined to become the ready tool of the rational mind, was at first a magical sign endowed with mystic powers. And then, all abstractions took their origin in the world of objects—they are impossible without being *abstracted* from the concrete, and useless unless they symbolize concrete things in their actual or possible relations.

Thus, mathematical instruction must be based upon the world of concrete things, and be continually related to it. Like time and space, the mathematical element is a method of the mind to categorize. Except in relation to geometry, mathematics is not in itself concrete. But, as Prof. W. S. Jackman once put it, "it is its function to give accuracy and exactness to ideas; to render hazy notions clear, and to evolve the definite from the indefinite."

Our common practice in the schools is not sufficiently consistent with rational methods.

First of all, there is too much abstract work in the early grades. Indeed, some of it will always prove helpful in the training of the budding faculty of abstraction, and, in the form of mental arithmetic, will assist in developing the power to hold mental images in mind, and to strengthen the memory along this line. Let us not forget that even the use of "denominate" numbers requires much abstraction unless the concrete image of the *things* which these denominations signify, is very vivid in the child's mind; and all "mental" work is, to the young child at least, much in the nature of abstraction since he must then even image the mathematical symbols. So much of abstract work is stultifying, and when we give our little children examples like this to puzzle over:

Divide 25 by 2-9 of 7-8 of 1-17, etc.—

we may well question the advisability of wasting time and energy on such stuff. Truly said R. B. Carter, in "Artificial Production of Stupidity in Schools":

"An urchin may be able to say correctly that a word pointed out to him is an adverb or a pronoun, may proceed to give a definition of either, and examples of instances of occurrence, and may produce the impression that he understands all this, when the truth is that he has only learned to make certain noises in a particular order and is unable to say anything intelligible about the matter in language of his own. Or he may repeat the multiplication table, and even work it, saying that 7x8=56, without knowing what 56 is, or what 7x8 means. He knows all about 7 or 8, not from schooling, but from the lessons of life, from having had 7 nuts or 8 marbles; but of 56, which is beyond his experience, he knows nothing. The nature of the mental operations of such children is perhaps as little known to the teacher, or to the vicar of the parish, or to the kind ladies who take an interest in the school, as the mental operations of the inhabitants of Saturn. The adults distinctly understand a thing which they feel to be very easy, and do not know that any children can talk about it correctly without attaching an idea to their words."

Mr. Carter wrote these words in England, fifty years ago!

We shall see later that some such drill has its value during the "counting period" of the child, or for utilizing the memory for the storing up of material for future use. But surely Mr. Carter was right in claiming that 56 means nothing concrete to the child. To how many of us does it?

Another common mistake is the attempt to exhaust the logical possibilities of number relations at too early an age. Thus the child is not allowed to proceed to the number 8 until he is supposed to have mastered all the possibilities up to 7. This is the most flagrant fault of the still surviving "Grube" method. In fact, the child can easily learn to count up to large numbers without exhausting any, and the hope to make him understand 7 before he attacks 8 is largely an illusion. It is a premature attempt at rationalizing, besides neglecting the child's early concrete notions of number as derived from actual observation. He usually knows a good deal about 8 before the pedantic schoolmaster deigns to take official cognizance of the fact. It is like the legal fiction that a man whose death certificate has once been filed, even tho by mistaken identification, remains legally dead, altho he may present himself in person to the court, until the court annuls the death certificate officially, and with much show of method.

We shall see later that the child's number concepts are of twofold origin; the result, on the one hand, of a continuous series (counting), and of space conceptions on the other.

In previous chapters mention has been made of the unessential details with which the course in arithmetic is usually overloaded. Problems in partial payment, broker's discount, and in fact almost the whole of commercial arithmetic are altogether outside of the child's province, and should be omitted. Most of the so-called "practical examples" ought to be weeded out and replaced by others which are more truly real problems to the child. Of these mistermed "practical examples", we may distinguish two classes:

First, those that are absolutely wrong, and which only seem to be "practical", because "practical" denominations are employed. To this class belong examples like the following: If one horse costs $40.00, how much will 20 horses cost? or: If one man can do a certain job in two days, and another could do the same work in four days, how long would it take if they were to work together? The answer expected to the first problem, $800.00, would be "mathematically" correct, but "practically" it would signify an exception. It happens rarely that there are 20 horses of exactly the same value on a stock farm; and if there were, you could buy 20 of them at one time at a considerable discount. In the second case much would depend upon the possibility of the two men working together profitably. They might be in each other's way. Or the "personal equation" might interfere. Or, they might help each other, thus saving time. Asked one teacher: "If one servant girl could clean three rooms in two hours, how long would it take two girls to do the work?" Little Girl: "Four hours." Teacher: "Wrong. It would take only one hour." Little Girl: "Oh, I didn't know you were talking about servant girls that wasn't on speaking terms."

As far as examples of this nature are legitimate at all, they would better be postponed until the time that an algebraic solution can be given.

A second class of spurious "practical" examples are those which are outside of the child's knowledge and interest. Most of the commercial details belong here. A child has no interest in corner lots and business speculations, and if he has he is not a genuine child. The true child has no experience in these things. Those children who will later enter a business life will then have opportunity of obtaining the knowledge and concentration requisite for these operations.

In the next place there is great need of simplification and unification. Altogether too many divers operations are distinguished which confuse the child's mind and prevent him from seeing the simple relations, and the fact that some operations are merely self-evident adaptations of others.

There is, for instance, no need at all to draw a sharp line between division and ratio and proportion. These two processes, or relations, are intimately connected, in a measure even identical. The artificial distinction is unduly emphasized by a multiplicity of signs. The child will be unable to recognize the essential identity of these three propositions:

$3:4::9:12$;
$3 \div 4 = 9 \div 12$; and
¾—9-12.

In arithmetical text books on the continent of Europe, no distinction is made between the signs of division and equation, and those of ratio and proportion. The signs : and = are the only ones used, in addition of course to the fractional line. It is not claimed here that there is not a logical distinction between division and proportion; but a child is not concerned in this.

Much can be gained by introducing the idea of equation at an early time. Algebraic methods, e. g. the parenthesis, can also be used at an early stage to advantage; arithmetical examples too complicated for a convenient arithmetical solution may fitly be postponed until the algebraic form can be used. Occasional demonstrations of the value of algebraic form will arouse an interest in this before the children are mature enough to employ it themselves. The bewildering complexity, apparent, not real, of the problems in percentage will be reduced to a minimum when once a formula like this will be grasped:

$$\frac{\text{Capital (Base)} \times \text{Per Cent} \times \text{Time}}{100} = \text{Interest}$$

which may be abbreviated in various ways, e. g.:

$$\frac{C \times \% \times T}{100} = I.$$

Above all things let us avoid juggling with figures in the elementary grades. When the work of comparison begins mathematical exercises become fruitful and educative. It was preceded by the collection of data (counting) whose principal value consists in that it affords opportunities for mental discipline. "In making comparisons", says Jackman, "there may be recognized four modes; . . . these four modes in their cumulative complexity also bear a natural relation to the development of the child's mind. The first mode of comparison which a child uses is where all the quantities are considered as *wholes*" (the four fundamental operations; the multiplication tables). . . . "The second mode is by considering one of the quantities directly as a part of the other" (fractions). . . . "In the third mode of comparison the child may use either quantity as the standard, but he must be able to conceive of it as being represented by unity" (ratio and proportion). . . . "In the fourth mode the pupil must be able to conceive of one of the quantities being represented by one hundred" (percentage) . . .

All exercises in mathematical accuracy will have to be grouped around these central thoughts and relations, and consequently be adapted to the development of the child's mind itself.

As a reaction against the ordinary methods of teaching number, the ratio method has been suggested by such men as Dewey, McClellan, and Speer. The keynote of this doctrine is struck in the preface to Mr. Speer's book: "The fundamental thing is to induce judgments of relative magnitude." The theory is that the child should be set, not to studying *about* number, nor to learning how to manipulate the bare *symbols* of number, but to exercising an activity which involves number, or which *is* number. It is claimed by this theory that the number by itself indicates relative value. It always expresses ratio, i. e. the relation which the magnitude to be measured bears to the unit of reference.

We may agree that number, being based on measurement, is ratio, philosophically considered; but this relation is not graspable by young children to the extent this newer method of teaching number demands. The ratio idea, being a rational idea, develops slowly. The child compares primarily magnitudes in a more or less crude way. Magnitude to the child is more or less the same as aggregation.

We cannot be too cautious in not expecting too much reasoning from the young child. It is clearly a mistake to insist pedantically upon the "whereas" and "therefor". Experiments on mathematical reasoning have been made by numerous psychologists. John A. Hancock shows that in the solution of the examples upon which the tests were based, and which were graduated according to the knowledge the pupils were supposed to possess, errors in reasoning were quite frequent below the 12th year; not before this period is the number of errors less than 50 per cent., the boys being usually ahead of the girls. "The errors may be all heard or seen daily; children hearing them rarely manifest suspicion of their absurdity." Typical examples of the mistakes are as follows: "Three feet equals fifteen inches, or one-third of twelve inches." "Five dozen eggs cost five times fifteen cents, or sixty eggs cost sixty times fifteen cents."

Speer's method which has found favor with many teachers, employs the motor activities of the child, and is thoroly objective. It bases arithmetic on geometry. So far, it is rational. But it neglects too much one of the two sources of mathematical conceptions. These two sources are, first, *counting,* and second, *measurement and form.* The "new arithmetic" is based on the second, to the exclusion of the first.

"The starting point of arithmetic", says Prof. Hermann Schubert, "is the idea of counting and of number as the result of counting. . . . The idea of addition springs immediately from the idea of counting." Of the "counting period" in young children, following the "naming period", mention has been made before. Pres. G. Stanley Hall refers to the primitive tallying and counting, to be observed in babies, as previous to the use of mathematical symbols. To the extreme advocates of exclusive workshop arithmetic, Prof. J. A. McClellan answers very justly as follows:

"The normal action is thwarted by the irrational arithmetic of quality, and the servile worshippers of qualitative unities. For when the child, in counting and measuring, is forced, by the workshop routinist, to dwell upon the 'qualitative aspects': to exercise his growing power of discrimination and relation upon the qualities of things, carefully noting perceived objects, and all the qualities that make them what they are, the mental movement of numerical abstraction and generalization, which alone results in numerical ideas, is either impeded, or absolutely arrested. But let the child be interested in finding the *how much* of some *quantity;* then, in his operation of counting and measuring he will inevitably 'drop the qualitative and consider only the quantitative aspect.' Every parent has seen the little one counting the groups of familiar things about him; has seen and rejoiced in it as indicating a higher energy struggling for expression. . . . When our playmates challenged us to a comparison of treasures, of playthings . . . we emptied our capacious pockets of all that they contained—common marbles, china alleys, jewsharps, knives, tops, whistles, pea-shooters, and so on—motley quantities they were; but they were *quantities;* quantities needing measurement to decide the question as to who was the richer or richest boy. Was ours then an arithmetic of the qualitative or the quantitative sort? . . . We saw in an instant that top, marble, and whistle, and knife, whatever their qualitative differences, were all alike in this—they were *playthings*—and therefore each contributed its part in making up the 'how many' which defined the 'how much', the end and purpose we had in view."

In the matter of facts, McClellan is correct; but he overestimates plainly the abstractive faculties of the young child. This primitive counting is based not so much upon measurement as upon the series idea. Boys, when interested in measurement, have already touched the threshold of mathematical reasoning, and cannot be said to be still on the level of rudimentary concepts.

Dr. Paul Carus contributes these observations to the problem under discussion:

"My experience is that children will, without the slightest trouble, learn to count first to 12, then to 20. When they have learnt to count to 20, they are prepared to count to any number up to 100 or more. The third step is an intellectual step, by learning to understand the function of the decades 30, 40, 50, etc., which are, however, clearly grasped as running parallel with 3, 4, 5, and so forth."

This counting is not necessarily bound up with objects. It is in its nature rhythmical, neither qualitative, nor truly quantitative, in the sense in which Prof. McClellan uses these terms. Says Dr. Carus:

"One peculiar phase in learning how to count is marked by the child's ability to stop at the right time. Children first acquire the mechanical memory of saying 1, 2, 3, 4, 5, etc. When they are shown five spoons or five chips or other things of any description and are requested to count them, they begin to count mechanically without being able to stop at the right time. It indicates a more advanced degree of mentality when the child possesses a perfect parallelism between the names of the numbers and the things which, by being pointed at, are to be counted. The process of counting has reached its maturity when a child learns to stop at the proper time. In the beginning the tendency will predominate that whenever the child begins to count, it will count the whole series of numbers as far as it knows them; but the relation between the things and the series of word-images of the numerals is easily established by stopping the child and summing up the situation by saying: There are five spoons, there are five chips, or whatever it may be."

Counting is automatically induced by the rhythmical movements of the body—breathing, heart-beat, walking, the swinging of arms in walking, etc. We are bound up in rhythm—our life is a rhythmical series. To what minute extent this is true, and how the fate of our existence depends upon this individual rhythm of each one of us, has quite recently been brought to light by the investigations of the Austrian professor Swoboda on the "Critical Days of Man." This natural life series has given rise to the number series; the names are but symbols, mnemonic signs, serving as cogs to the memory. In this sense, the concept of time is gained by counting, as a rhythmical succession. This concept is very hazy in the beginning. The historic sense, conditioned as it is by the time concept, depends in the beginning of its evolution upon tallying and concrete helps which characterize the early records, transmitted first orally, and then in some symbolic form. The sense of space is also conditioned by the rhythmical movements of the body in walking, counting the steps.

The idea of real number develops very slowly. Prof. Th. Ribot, in his researches concerning the intelligence of animals, speaks of the perception of plurality as distinct from numeration. The former is found in animals. The logic of animals, or rather the sole kind of logic possible without speech, is the logic of images. This is refractory to attempt at substitution, as of signs for concrete facts. Even elementary arithmetical problems, it must be noted, are worked out by using the logic of signs, replacing the concrete facts by figures, and working out the relations of these. "The child", says the same author elsewhere, "may recite a series of numerical words that have been taught him; but so long as he fails to apply each term of the series correctly to a number of corresponding objects, he does not understand it. . . . This comprehension is only acquired slowly and at a somewhat late period. . . . The child appreciates by *space* and not by number."

Of this last statement, more will be said presently.

To understand more clearly the painful slowness which characterizes the development of numeration out of the perception of plurality, we may remember the development of the ideas of singular, dual, and plural. To quote again from Ribot: "Nothing appears more natural and clear-cut than the distinction between one and several; as soon as we exceed pure unity, the mother of numbers, plurality appears to us to be homogeneous in all its degrees. It has not been so from the beginning. This is proved by the existence of the dual in an enormous number of languages. . . . One, two, were counted with precision; the rest was vague. According to Sayce, the word 'three' in Aryan language at first signified 'what goes beyond.' It has been supposed that the dual was at first applied to the paired parts of the body: the eyes, the arms, the legs. Intellectual progress caused it to fall into disuse."

The slow development of clear number conceptions is paralleled by the tardy invention of handy methods of figuring. It is not even necessary to go back to the primitive methods of using fingers, knotted cords, abacus, and other concrete helps. Even the Roman notation throws obstacles in the way of the mathematician of which we have hardly a conception now. How irrational appears the Roman form in comparison with the Arabic notation in this simple problem:

$$\begin{array}{c} \text{XI} \\ \text{XL} \\ \hline \text{LI} \end{array} \qquad\qquad \begin{array}{r} 11 \\ 40 \\ \hline 51 \end{array}$$

Giving just one example of an ancient method of reckoning we may select the Egyptian as typical. In spite of the fact that the ancient Nile valley dwellers were wonderful architects and were quite advanced in astronomy and religious philosophy, they worked their examples largely by a series of additions, splittings of fractions, and with the help of tables of doubles, etc. For instance, if one wished to find out how many times 7 is contained in 77, he must use the following table of factors of 7:

*1	7*
*2	14*
4	28
*8	56*
16	112 etc., etc.

Those numbers are marked with asterisks whose sum on the right is 77, and the sum of the corresponding numbers on the left is the answer. They therefore substituted an addition process for one of division. The ancient Egyptian calculators seem to have preferably used multiples and submultiples of 2. Thus, to divide 19 by 8, the following table of factors was used:

1	8
*2	16
½	4
*¼	2
*⅛	1

As 16+2+1=19, the quotient sought was accordingly 2+¼+⅛, or 2⅜. Fractions with numerators greater than unity seem not to have been employed. For the solution of what would to us seem a simple algebraic problem, the Egyptian calculator would probably have had to consult half a dozen different tables of factors.*

The movements with which young children accompany their counting—tapping, pounding, etc., indicate that couning is a motor act. Number is the result of repetition. It is therefore evident that even this side of the mathematical development is based upon concrete activity.

Ribot claims that the child appreciates by space and not by number. Early number conceptions, involving the idea of magnitude proper, are in reality space conceptions. This is also corroborated by the curious "number forms" with which most people, more or less unconsciously, accompany their ideas of number. A very instructive study of these "number forms" has been published in the American Journal of Psychology, by D. E. Phillips. He writes: "Without doubt children tend to connect some movement or extension in space with numbers, and it is here that we are to find the genesis of number forms. Back of any visual image seen by the mind's eye is the motor element in thought, which must have space as background."

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*A very instructive treatise on primitive and ancient methods of calculation and the development of the number concepts in the past and in the child is contained in Vol. VIII of the Science History of the Universe, Current Literature Publ. Co., 1909.

But these space concepts are very indefinite in the beginning. They contain little of attempted measurement, only perhaps a crude comparison of distance and aggregation, or perhaps only of form in general. The idea of ratio as such is still rudimentary.

However, this consideration introduces the second source of mathematical conceptions: *measurement,* i. e. geometrical perception. And here suggestions like Speer's have their place if they are supplemented by manual exercises of various kinds. Elementary geography has decided geometrical features—the relation of objects in the room, position, etc., are all elements to be considered.

Now, the real problem seems to be: which of these processes precedes the other in the mathematical evolution of the child? And it is this problem over which the greatest diversity of opinion has been expressed, from the time of the famous Report of the Committee of Fifteen to this day.

As is the case in so many discussions, both contending opinions are perhaps right to some extent, and the truth can be found midway between them. It may be difficult to decide absolutely which one of the two operations, counting or measuring, or quantitative and qualitative arithmetic, is chronologically prior to the other. In all likelihood, the two processes develop partways alongside of each other, without at first being logically connected. To follow them up in their distinctive evolution will require more exact psychologic data than there are at hand. Primitive counting, certainly, does not consider quality, but is a mechanical, or perhaps physiological, series, and the objects serve as artificial cogs, as the primitive knotted cord.

The rhythmic movements of the body which are at the basis of counting, have possibly induced the idea of space and time relations, and with them the process of comparison and measurement in space and time. At any rate, the higher conceptions of number rest on motor and space elements that have a qualitative interest. From there, the still higher abstraction is made towards the conception of pure quantity, quantity as free from qualitative elements.

This suggests that in the youngest years of the child's school life, including at least the so-called first grade, we should be satisfied mainly with crude exercises in counting and tallying, together with some memory drill in the multiplication tables, for the sake of storing up material. Little or no rationalization, or "example" work, should be attempted. Many children will need patience, and long toleration of crude conceptions, thru the greater part of their school life.

For the development of real mathematical conceptions, ideas of number and magnitude, manual work and actual measurements of all kinds will form the safest basis, and this may be done somewhat independently, alongside with counting.

The artificial (logical) sequence of exercises as found in our schools is largely unwarranted. The method of presentation is really more important than the "logical" grading of problems. Yet, we may remember the sequence of the four processes as described by Jackman. In a simple way, these processes may be introduced simultaneously, and carried on in concentric circles. Care should be taken not to mix the processes unduly, as is often done, e. g. when a pretense is made to teach decimals when in reality they are treated as common fractions. For example: when 0.25 is treated as if it read ¼. It is equal to ¼, and the child may be made to see that; but the decimal fraction must not be handled in operation like a common fraction. Correlation is not identical with mixing and confusing.

As to method, the following hints may here suffice:

Of the first suggestion: *correlation* with everything the child does, nothing need to be said here, as there are ample references to this requirement in these pages.

An *objective basis* will be established if really practical examples accompany all work. Practical in this sense refers to experience and actual work done. Nature observations, weather records, experiments, manual exercises, geographical and historical data, etc., etc., will furnish an abundance of problems. Cardboard work, cutting out of forms in soft material and wood, and similar work, will serve as an empiric basis for geometry. Constructive games and puzzles, arithmetical games and riddles, and the like, will appeal to the great puzzle interest of the children.

Within the province of mathematical work, there should be established an *interrelation of geometry and algebra with arithmetic*. Geometrical and constructive puzzles precede purely numerical puzzles in the interest curve of children.

The relation between the three forms of mathematical cognition and operation which are kept logically distinct by the adult mind and the philosopher, but which should not be pedantically separated with the child, should be constant. We should at every stage use the method best adapted to an easy and lucid solution of the problem in hand. Short cuts are welcome whenever the child can see thru them, even tho he may not be able to reason them out absolutely with a whereas and therefore. The intuitive method of children need not be too much discouraged. The algebraic notions of equation, parenthesis, and the unknown quantity x, can be employed to great advantage even in the earlier years.

We must understand that the concrete work here recommended is to furnish the apperceptive basis. There is beyond doubt need of drill in operations and memory work—in quick perception and rapid solution. The aim must surely be to develop the faculty of abstract reasoning, apart from a clearer perception of objective work. Prof. J. T. McCormack said in one of his thoughtful essays: "Natural arithmetical machines have been in use among savage and civilized nations from the earliest time. Their employment, however, from our present advanced point of view, denoted rather an inferior than a superior stage of intellectual development. The fingers, strings of beads, knots in cords, notches in sticks, etc., etc., were the means primitively employed in computation; counting was a motor act, an act of sense, and not one of the intellect; the results were the actual things added or subtracted, and not symbols representing those results. The original intellectual advance, therefore, consisted rather in the abolition of this primitive machinery and in the substitution for it of a procedure which was mainly psychical and mnemonic, involving a mechanical knowledge of the simple combinations of numbers, of the multiplication table, and of the use of pencil and paper."

These statements throw much light upon the problem as discussed in this chapter. From the standpoint of the mathematical philosopher, indeed, these objective helps denote inferior intellectual development. But the child below twelve is still in the primitive mental stage, and the rationalization and abstraction of number cannot advantageously be forced before its time.

Hodge, in his study of the homing of pigeons, was led to investigate the natural logic of search. Believing that those animals survive who have developed the most exhaustive methods of searching a given area for food, he sought to discover how nearly the procedure of carrier pigeons approximates the ideal. For comparative determinations he devised the following experiment which was chiefly tried by children and adults. A ball is so hidden in a square field that it can be seen when the observer is 20 feet distant. From the stake at the center as a starting point, what is the best method of finding the ball? The mathematically best method is a path of spiral shape, the distance between the lines being 40 feet. This involves practically no researchings. Another logical method is that of a series of straight paths gridironing the field in a way. This involves the searching of some areas a second time. There are simpler logical methods, but they need not be mentioned. As to results, most of the adults approximated very nearly the theoretical curve. A boy of twelve, however, starts for the fence, follows it for some distance, then turning in, discovers the ball by accident. His curve is somewhat logical but naturally of a lower degree than those of adults. Tests of a number of children varying in age from 3 to 12 show surprisingly little logic. The tracings of a bright six-year-old girl resembled the tracings of Lubbock's ants, revealing scarcely a trace of system, and were full of researchings of areas already searched time and again. After 75 minutes, she still failed to find the ball which adults discovered in from 4 to 12 minutes.

When the time comes that the faculty of true reasoning and abstract thinking arises, then the children will take great pleasure in wrestling with these problems. At this time, the pubescent period, intense work ought to be done, and the scientific aspects of geometry and algebra may be introduced, and mathematical laws formulated. Some sexual differentiation will have to be considered in accordance with the suggestions recorded elsewhere.

But before that time, it should be repeated, the children have very little appreciation of law and abstraction.

It is not merely for its intellectual value that mathematics deserves a high place in the curriculum of the school, provided it is taught with an understanding of child nature; but also for its ethical significance. Mathematics involves *precise cognition;* it makes, as Pestalozzi expressed it, for truth. The recognition of truth, as scientifically distinct from error and tentative conjecture, grows slowly in the young mind. First it is approached thru doing and trying concrete things; this is the stage of crude empiricism, which is half unconscious and automatically intuitive. It is dependent upon an early training in right life habits. This non-reasoning period is largely furnishing the degree of facility which is the prerequisite of successful handling of the material when the rational period sets in. In the rational stage, truth is recognized to be a matter of law and order, of causative sequence, of patient toil, of a surrender of personal idiosyncrasies. Paradoxically it may be said that while the child is in the objective stage, truth is subjective to him, a matter of personal equation; after outgrowing the primitive stage, and objective cogs; after evolving his truly human personality; he recognizes that truth is not subjective, but objective, the same for all. And this development from concrete empiricism to reason marks a decided ethical gain.

CHAPTER IX

Geography as a Collective Center

GEOGRAPHY, as a description of the earth, includes natural history. As a science, geography includes natural science. Considered from the standpoint of evolution, it embraces the history of the earth: geology, mineralogy, and the origin and development of life, up to man. Thus it comprises biology and history.

As physiography, it helps to explain historical events in their causality. For the earth is the habitation of man, and man's life is conditioned in a great measure by the configuration of land and sea, and by the products of both, by climate, etc.

These conditions change. Physiographic changes throw light upon events which would otherwise be unintelligible to us. Thermopylae is now no longer the narrow pass between mountain and sea that it was at the time of the heroic struggle of the Spartans under Leonidas, and we could not understand that event had we no knowledge of the physiographic history of the location; and Ostia, at the present time an inland town, can no longer be recognized as the one time "mouth" (ostium) of the Tiber.

Geography further relates to the earth as a unit in space; to the universe of which it is a part: this leads to astronomy.

Astronomy depends upon mathematics; in fact it represents the greatest triumph of mathematics. The terms longitude and time introduce mathematical geography. Geometry is the science of measuring the earth; it is the science of distance relations; it mediates the conception of space, and of form in space. Earth measuring, again, is conditioned by a knowledge of the points of the compass; this introduces the study of magnetism and electricity. The study of the seasons, of climate, of isotherms, etc., opens up the science of meteorology.

Geography thus proves its claim to be considered as a collective center of study; in its complete sense it is comprehensive and full of diversified stimulations of interest.

Geography study depends on the *sense of cause and effect*, and the *sense of space*. Both develop slowly in the child. "Alice in Wonderland" and "Thru the Looking Glass" illustrate fitly the wild guesses and beliefs as to possible locations and conditions characteristic of the child. His imaginary world is not hedged in by space limitations. He is living in a fairy land where cause and effect have no logical coherence, and where the impossible is possible. He sees no objection to big things being enclosed in small compass, e. g. a spacious palace in what is outside but a small, low hut; or to little things extending over vast space, as Hop o' my Thumb in his Seven Miles Boots. We, as adults, may discover a wonderful symbolism in these tales; the child takes them as reality.

Again when confronted with the reality of things, his limit seems soon to be reached. As the train stopped at Thornton on the first railroad excursion of the Chicago Vacation Schools, one little miss whose ideas of the geography and the size of America were somewhat hazy, whispered in awe-struck voice to the teacher: "Is this still the United States?"

What a change comes over us when we grow older in regard to our conception of space, is evident from the well-known observation that things which looked very big to us when we were small, now seem surprisingly insignificant.

In building up geographical concepts, we must consider and establish the proper apperceptive basis. It will not be amiss to repeat here what was said in a previous chapter:*

"From the concrete material in the immediate environment of the child, from the images of his own house and lawn, the trees, hills, rocks, valleys, creeks, rivers, ponds, etc.; of people he knows and occupations he sees carried on; of natural processes like water running down his own hill, of dirt washed down the watersheds of his own road, of toy boats floating in his gutter, etc., etc., from all this he must learn to construct in his mind concepts of things remote, of the Himalayas, the oceans, foreign people, and all the wonderful things that make up the life of nature and man. Words, names, pictures, samples of material even, maps, and the like, are nothing but symbols, meaningless to him unless he can connect them with real experiences of his own."

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*Page 84.

Too much reliance upon maps, pictures, or descriptions, from geographies, or by word of mouth, is therefore unwise. There must first be observation and experiment to furnish the concrete basis.

Opportunity for these, as far as the school can afford it, will be rendered by systematically organized excursions, the proper use of the sandtable, and later the laboratory. As soon as possible, observations should be carefully recorded. Home geography is the natural starting point; and we must confine ourselves to concrete experiences for a long while before venturing out on the making of inferences.

All sorts of illustrative material are welcome in conjunction with the objective work: collections of flowers, animals, and birds, shells, pictures, dressed dolls, etc. The making of illustrative work, the building up of scenery and physiographic configuration on the sandtable, leading up to assembled work as described in Chapter VII, will be of particular and concrete reality.

Maps should first be developed by the children from experience. Their walks can be illustrated and reproduced on the sandtable, with buildings put in of wood and cardboard. The sandtable reproduction may then serve as the starting point for map making and map reading. In order to take but one step at a time and not produce the illusion that north is invariably at the top, it will be well to present the first maps on the horizontal plane, in exact agreement with the natural directions, and then proceed to vertical maps which should be hung in very different positions. How difficult it is for an ordinary mortal who had been taught geography principally from maps placed before him in the traditional position, to recognize a country when there is any deviation from this position, will at once become evident as soon as we try to recognize bits of country with the map turned around at a greater or lesser angle. Such difficulties and absurdities should be avoided from the start.

Let us not abstract too early. The fact that a child knows what a ball is does not enable him to understand the earth to be a big ball. Yet, the globe is often introduced in very young grades, and recently attempts have been made, even by persons bearing illustrious names, to teach to the babes of the kindergarten the celestial movements by symbolic games. The effect of such premature abstractions, no matter how much we try to symbolize, is largely illusory. An experiment was undertaken in the second grade of the Ethical Culture Schools some years ago to test the conceptions of the children in regard to matters of this sort. They were taught the form of the earth to be round like a ball; each child had an opportunity of seeing and handling a large globe; and every effort was made, in traditional fashion, to develop the idea. They seemed to grasp it and talked glibly about it. A little while later, apparently without connection with the geography lesson, they were requested to write out their conception of the earth, and what would happen if they would set out to travel from New York as far as they could. The surprise of the teacher who imagined that she had successfully developed the idea of the earth's roundness, was complete. For a large number of the children gave descriptions and expressed conceptions very suggestive of primitive notions. They would come to the end of the earth and fall off, or not get any farther, etc., etc. As the papers were not preserved I cannot give actual quotations or submit statistics; but the experiment showed that what the children had seemingly learned and mastered was a conglomeration of words and symbols, without much real significance to them. They were not mature enough to grasp the abstraction, and when properly tested they proved that they were still intellectually on the level of primitive culture.

As the earth is of interest to us mainly, yea almost exclusively, because it is the abode of man, there must be a constant reference to man's development on earth, in other words, a close interrelation with history.

In venturing to outline a course in geography, the author wishes merely to present some suggestive details, also indicating, in a general way, the succession of topics.

FIRST GRADE:

Observe the sun in morning and afternoon. Points of compass developed: first east and west, then north and south. Mark walls with points of compass. Direction of wind. Weather charts.

Read typical expressions and terms, such as the points of the compass, or words like "fair", "cloudy", etc., from the blackboard. Construction of same words with cardboard letters or other devices. Later in course, typesetting may be introduced.

Days of the week; count weeks; then introduce month, and names of months; count days in month; date. (Naming and counting periods.)

On level surface (work table), outline with blocks schoolroom from measurements, foot reduced to inch (idea of scale); count tables and chairs, mark their position by using blocks (cubes of Fifth Gift, and multiples).

Then mark same on sandtable, with lines scratched in. This is the second step towards symbolic representation.

Then draw same, with coarse pencil, on a level sheet of manila paper (inch net, or rule; always same scale): third step.

The fourth step is reached when the map is reproduced on the black board, with the help of ruler at first. This marks transition from horizontal to vertical plane, or map. Different positions of the map on board. Introduction of drawing distances, or lengths, by sight.

Study direction of street; mark it on sandtable, following natural direction. Indicate schoolhouse by block, or by building cardboard house.

Develop idea of square (block) of houses and cross streets. Way home and to school: count number of blocks; names of streets in neighborhood. Reading and setting of these names, as well as of previously learned names. Reproduce location on sandtables or worktable with blocks. Rough drawing on manila sheet.

Walks thru the city; discussion of reminiscences. Reproduction of locations remembered (squares, parks, fountains, music-stands, public buildings, etc.) on sandtable, with blocks, clay-models, cut-out figures, and the like.

Building-blocks for fancy reproductions and free play; then introduction of architectural ideas.

Modern buildings and primitive dwellings. Constructions in school yard. Connection with history and literature.

Paper-cutting of familiar objects, scenes, events, etc.

Watch domestic animals, common birds, simple wild and garden flowers, and note location, migration, and conditions of life. Seasons.

The lands of winter, summer, spring, fall, in myths and fairy tales.

Principal types of men: white, black, red, brown, yellow.

SECOND GRADE:

Same things observed and discussed on a higher plane.

From home to school.

In clay, home and schoolhouse. Paper-cutting of same.

General idea and plan of city and environment (not too many details of streets, etc.!), on sandtable, with representation of rivers, hills, principal buildings, etc.

Relief maps in sand, of ranges of hills, etc.

Special scenes represented: public parks, squares, mills, ponds, waterworks, and the like.

Observe "that the rills flowing in wheel-ruts widen them and carry the washings to the nearest mud-puddle." Watch rivers and brooks in spring; observe the current. Idea of elevation and watershed; movement of the water; hills and valleys.

Observe rain and clouds; thunderstorms, hail.

In winter, lessons, with experiments, on water, ice, snow.

In summer, the same on air (balloon, etc.).

Protection from weather. Idea of home-building: nests, huts, tents (make same). Furnish doll's house. Miniature carpentry. (Cf. manual training course.)

Roads; railroads. Idea of distance, and of distant settlements.

Sunrise and sunset; motion of stars at night. Directions.

Creation myths (cf. subsequent chapter). Gradual preparation for idea of globe in space.

THIRD GRADE:

Watching ships on ocean and lake; or, moving trains, wagons, etc., on plains. Story of Columbus. LARGE globe to experiment with.

"Little Lucy's Wonderful Globe." "The Seven Little Sisters." "Aunt Martha's Corner Cupboard."

Concentration on reading and writing.—

Sun, moon, stars; constellations.

Some nature study, on common things, perhaps in connection with last book mentioned above; Horace H. Cummings' "Nature Study by Grades" is well adapted to connect geography and nature in this and in other classes.

Travel. Robinson Crusoe. Typical occupations.

Build house and barn; make doll's house for Second Grade. Figure out material necessary for this work. Combination of wood-work (sawing and knife), parquetry, paper cutting, and pasting.

Miniature carpentry: garden tools, fence, hay-wagon, etc. Model animals and dolls to represent various scenes.

FOURTH GRADE:

Excursions thru city and surrounding country on different kinds of vehicles of transportation, to get empiric notions of travel, of life conditions, interesting places, centres of trade within the limit of observations, manufacture, farming, public institutions, etc. Apperceptive basis for following work:

Imaginary work: Roaming thru the world.

(a) Noted cities and buildings, bridges, etc., showing man's conquest of nature;

(b) Nature's beauties (cataracts, mountains, rivers, etc.).

(c) Inventions—from the potter's wheel and the primitive loom to modern machines (sewing machines, mariner's compass, steamboats, railroads, electric cars, electric light, telephone and telegraph, automobiles, flying machines.)

Idea of commerce and communication.

Biographies of the inventors will '"humanize" this work.

Bits of history from all lands.

FIFTH GRADE:

Summary of early experiences.

Study of the heavens and the simple facts of astronomy. Seasons, weather, climate.

Concentration upon geography of North America.

Survey of South America. Map modeling and drawing. Shaded maps in color. The vertical and horizontal planes.

SIXTH GRADE:

(1) The Mediterranean Basin and the Nile Valley, as the scenes of early civilization.

(2) Progress of geographical knowledge.

(3) The globe.

(4) Beginning of mathematical geography.

SEVENTH GRADE:

Intense work.

Migration of people. Study of Europe. In connection with Crusades and Discoveries, geography of the countries concerned.

Commercial geography; ideas of food, clothing, shelter; manufacturing; export and import. The great staples. This to be continued in Eighth.

Distribution of flora and fauna.

Physiography; geology; minerology. Experiments. Mathematical geography.

EIGHTH GRADE:

Detailed study of the United States.

The bird's eye view of the earth and the world as the home of man, taken in the previous grades and summed up in the highest, leads up to a particularized reference to the mother country. The aim here should be to imbue the pupil with a clear view of its proportional significance in the sum total of human interests, and also to develop true patriotism, and love of country, as distinct from what has been called chauvenism and Jingoism.

> "Breathes there a man with soul so dead,
> Who never to himself hath said,
> This is my own, my native land!
> Whose heart hath ne'er within him burn'd,
> As home his footsteps he hath turned,
> From wandering on a foreign strand!"
> (Scott, "Lady of the Last Minstrel").

And few countries are so favored as ours, appeal so much to the sense of just appreciation of her unusual advantages and glories. Here, the destiny of the race seems to be fulfilled; here the representatives of all civilized nations of the world are meeting on common ground, to evolve, in the form of a new nation, the ideal of humanity, by each offering its best, all blending together, and adjusting themselves to a common aim.

> "O beautiful and grand
> My own, my native land!
> Of thee I boast:
> Great Empire of the West,
> The dearest and the best,
> *Made up of all the rest,*
> I love thee most!"
> (Abraham Coles).

CHAPTER X

History as a Collective Center

THIS passage is from G. Ebers' "The Sisters":

"Behold, the puny Child of Man
  Sits by Time's boundless sea,
And gathers in his feeble hand
  Drops of Eternity.

"He overhears some broken words
  Of whispered mystery—
He writes them in a tiny book
  And calls it 'History'!

"We owe these verses to an accomplished friend; another has amplified the idea by adding the two that follow:

  "If indeed the puny Child of Man
Had not gathered drops from that wide sea,
  Those small deeds that fill his little span,
Had been lost in dumb Eternity.

  "Feeble is his hand, and yet it dare
Seize some drops of that perennial stream;
  As they fall they catch a transient gleam—
Lo! Eternity is mirrored there!"

It is well that we should, at the outset, fix this thought in our minds. No other study relates the human soul so closely to the eternal powers that make for perfection and righteousness, as does history. It reveals to us the laws which govern human existence, and each event is a link in a grand evolutionary chain leading up to the ideal. History discloses to us the sequence of human ideals of perfection as they unfolded themselves in the mind of man from crude beginnings when he but dimly discerned the force that urged him along the arduous road of progress, down to our own times when we imagine to understand better than ever before these divine promptings.

"After death," says Sadie E. Simons, in Educational Value of Biography, "the great man of the tribe is idealized, and with the passing of years he develops into the type admired by the particular people among whom he once lived. This type in the course of centuries becomes farther and farther removed from its source, until we can scarcely discover its origin. Who is Arthur, Siegfried, or Roland but the ideal man of his respective age and land?" (Educ. Review, Jan., 1899.)

Each epoch in human evolution is characterized by the ideal types of manhood which it matured, either in actuality or as a spiritual goal. Man as a national chief or a tribal god, as a citizen in a democracy or leader in the struggle for advance and greatness, man as a spiritual hero and teacher of better things—man in all his various phases of active living, stands out from the pages of history and teaches the lesson that uplifts, and fills our hearts with courage and hope. The lesson of history is concentrated and sublimated in the study of civics and ethics which open up a future of greater perfection and beatitude, when man will carry the banner of civilization to still loftier heights, "that banner with the strange device: Excelsior!"

Human development is conditioned by natural laws. Says the geographer Redway:*

"At some time in the near future the teacher of history will doubtless discover what the critical student of history has already made the basis of study, namely: that history is nothing more than an echo of the operation of geographical laws; that humankind as well as other organic life is a slave to hunger; that all migrations and dispersions of peoples are merely quantitative expressions of moisture and temperature; and the nationalism of government is merely a machinery for the rapid and equitable distribution of food. These are not only fundamental principles of history, but they are none the less principles of physiographic science as well."

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*Educ. Rev., November, 1894.

Thus the interrelation of history with geography, with the distribution of the flora and fauna, with the climatic conditions, as well as on the other hand with literature, civics and ethics in which the ideals of successive periods have found their expression, is clearly seen.

The interest in history dates back to the time when man became conscious of himself. Ancestor worship marks the beginnings of history no less than of religion. Tribal and national heroes became gods, and shared with the forces of nature the first stammering reverence of pristine peoples. The bards who sang the deeds of heroes and gods were not only the first poets, but also the first historians; the rude inscriptions on tombs and rocks were the first records.

But the true historic sense was slow of growth. Fear and fancy composed the first records; credulity and superstition brought forth innumerable fabulations. Thru legend and myth, the human mind rose in a long struggle with its own misconceptions to a sense for certainty and truth. The notions of time and space evolved but gradually to distinctness and scientific accuracy.

Hazy as the ideas of primitive man were, so are the child's.

"Children appear to have very vague ideas about the past. On the one hand, as in the case of their measurements of space, their standard of time is not ours; an hour, say the first morning at school, may seem an eternity to a child's consciousness. The days, the months, the years, seem to fly faster and faster as we get older. On the other hand, as in the case of space judgment, too, the child, thru his inability to represent time, on a large scale, is apt to bring the past too near the present. Mothers and young teachers would be surprised if they knew how children interpreted their first historical instruction introduced by the common phrase: 'Many years ago,' or similar expressions". (James Sully, "Studies of Childhood")

In a delightful little story, apparently a fond father's confession, "W. V.—Her Violets", By Wm. Canton, (McClures, August, 1897) we read:

"As we wander along I think of all the change which has taken place since last I recorded our birthday rambles in the Forest. It is only a year ago, and yet how amazingly W. V. has grown in a twelve-month! Even to her the Forest is no longer quite the same vague enchanted region it used to be. Strange people have started up out of history and invaded its green solitude; on the outskirts 'ancient Britons', tattoed with blue woad, have made clearings and sown corn, and 'old Romans' have run a long straight 'street' thru one portion of it. There still lingers in her heart a coy belief in little green plaid oak-men, and flower-elves, and subtle sylvan creatures of fancy; indeed, it was only the other day that she asked me, 'How *does* the sun keep up in the sky? Is it hanging on a fairy tree?' but I notice a growing impatience at sham stories and a preference for what has really happened,—'something about the Romans or the Danes or the Saxons or Jesus.' When I begin some wonderful saga, she looks up alertly, 'True'?—then settles down to her enjoyment. . . .

"In spite of her devotion to history and love of truth, I fear W. V. cannot be counted on for accuracy. What am I to say when, in a rattle-pate mood, she tells me that not only Julius Cæsar but Oliver Cromwell was lost on board the 'White Ship',—like needles in a haystack? Her perception of the lapse of time and the remoteness of events is altogether untrustworthy. . . . It is incomprehensible to her that 'everyone' should have died so long ago. She does not understand how it happens that even I, venerable as I am, did not know the Druids, or the Saxons, or any of those 'old Romans'. 'You are very old, aren't you, father?—thirty-four?' 'I am more than thirty-five, dear.' 'That is a lot older than me,' somewhat dubiously. 'Nearly six times. . .' "

The question now arises, what is the true historic sense?

Mrs. Mary Sheldon Barnes has attempted to answer this question. Says she: ("The Historic Sense among Primitive Peoples," Studies in Education, 1.):

"The historic sense can be separated into certain elements. It is born wherever the human mind attains a conception of making a true record of real and concerted human action, progressive thru time and connected by cause and effect. Take the Sagas of the North, Herodotus, the Books of the Kings, Mommsen's Rome,—take anything you will that men call history, and you will find this to distinguish it from myth as history,—that it is considered as true; this to mark it off from biography,—that it relates to groups of men; this to separate it from sociology, philosophy, or literature—that actions are its theme, and these actions are related by cause and effect acting thru continuous time. . . . Thru the historic sense humanity becomes self-conscious and self-directing. . . .

"To sum up: First, the knowledge which we call history rests upon the sense of cause and effect, the sense of the social unit, the sense of time, the sense of the value of a true record. These all appear early in vague forms, as in myths of origin, and all advance together, now this idea, now that, leading, but no one idea allowed to get positively ahead. Of the four, the idea of time and of the true record lag; and yet we find even these well developed among peoples as advanced as the Polynesians. . . ."

In a similar way the historic sense develops in the children. Rarely before ten occurs a change from belief to disbelief in superstitions, and begin children to appreciate impossibilities. Up to 12 their interest turns from fairy tales to stories of adventure and history. But not before 12 is there any marked tendency to search into the relations of cause and effect, and to care for a true record.

I reproduce here some paragraphs from Mrs. Barnes' careful study of the parallelism between the primitive man and the child in relation to the evolution of the historic sense.

"(1) As to the order in which those notions appear we see that among savages they appear altogether in the rudimentary form of the myths of origin, which, on placed in space, vaguely placed in time, attempt to give some true account of the beginnings of man and of the world. . . . Among children we find the same fact. From the age of seven onward we find them inquiring after time, cause and effect, the social unit, and the truthful record,—that is, all the elements lie within the field of the child's curiosity; and it is interesting to note how early they inquire after origin: Who made us? Where did we come from? The plain conclusion as to the method here is that history is a suitable subject for children from the age of seven at least.

"(2) As to the sense of time we see that this sense with savages is based on the power to count, and the power to record that count concretely, either with the fingers, the notch stick, or the knotted cord, and that it develops along with the development of the inventions for keeping count; in other words that this sense requires much objective assistance. With children we have seen that sense seems slight, and that time is badly understood until the age of twelve or thirteen. The conclusion as to the method is that the child should be assisted, as the savage was, by some concrete symbol or invention by which he can keep his counts in sight, and reckon time visibly.

"(3) As to the notion of cause and effect, or, to put it differently, the power to infer, we see that both with savages and children it is present from the beginning, but that it is unconscious with primitive peoples, and that with children the power does not become at all critical before the age of twelve or thirteen, and that it seems then to receive a positive impulse, becoming stronger as well as more exact. The conclusion as to method is clear, that children should not be especially trained or urged in inference until the ages of twelve or thirteen, and that then we may reasonably encourage them to draw independent and correct conclusions from given premises.

"(4) As to sense of the social unit, we have seen that with primitive peoples the sense concentrates itself about ancestors, heroes, kings, developing into a sense of wider personality as their history, that is, their experience widens. The interest of the children according to the indication follows the same order; but, since education partially takes the place of experience, we cannot yet say positively at what age we may develop the larger interest; at present we may say not before the age of 11 or 12. The application to method is that history should first interest itself with the biographies of heroic and striking characters who are connected with the previous knowledge of life of the child. . . . They should always be connected with that life of action which belongs to children and primitive people alike. These biographies should be of men who fight and hunt and build, rather than of men who write or think or legislate. John Smith is nearer to the child than William Bradford. . . .

"(5) The sense of a truthful record seems to be quite positive with savages, altho it does not occur to them to substantiate that truth by any searching criticism of evidence. Children, too, are very anxious to know whether a record or story is true or not altho they are largely contented with being told that it is true by a person in whom they have faith, not showing a tendency to inquire critically into the matter until the ages of 12 or 13. . . . (Even the interest in "true or not" is not present in the very young child. G.).

"(6) As to the forms of history we have seen that critical history develops last in the history of the race, being preceded by beautiful history, moral history, and mnemonic history, all these forms running along contemporaneously. With children we see that history finds natural expression in stories, pictures, dramatic plays and poems, with or without a moral. From both these sets of facts I conclude that we should seek our history for children in Plutarch, Homer, and Shakespeare, before seeking it in edited documents with notes and criticisms of the modern school of history. Nor must we forget that primitive history shows a large mnemonic element, appearing in lists and genealogies. This arises from the fact that memory requires an artificial cog, and these lists and genealogies supply the place of the earlier knotted cord. . . . The wide employment of aesthetic and didactic forms of history indicates that they should form a large element in the early presentation of our subject. On the aesthetic side, Homer, Ossian, the Nibelungenlied, on the didactic side, Plutarch and the Bible, give us plenty of appropriate material. The scientific forms must wait on the development of material, and also on the development of the critical sense; that is, until the ages of 12 and above."

This investigation corroborates the contention that a course in history teaching must follow the natural stages of the child's mental evolution. Even in the development of the historic sense, children pass thru the successive forms of consciousness of the race.

Let us also be reminded of these three things:

(1) There must be the proper apperceptive basis, beginning with the known and proceeding to the unknown. There should be the proper geographical setting. On the whole, a going backward from present conditions to older times, by a process of gradual divestiture of the later accoutrements and forms of civilization, in reverse order of acquistion, will commend itself, for the earlier stages of history teaching at least.

Illustrations are, in this work, a secondary help; direct observation is the primary requisite. Typical occupations should be studied, again beginning with the present form and going back to primitive processes, such as the children themselves are capable of testing thru personal experience. They may be made to use a simple potter's wheel, or loom, to study the manipulations which led up to modern machines.

(2) There must be, as indicated in this last suggestion, expression thru motor activity: making, drawing, modeling.

(3) This again involves the principle of co-ordination.

Further there should be no narrowing down to U. S. History. Children must be initiated to the universal human interests, to gain the proper background and perspective for their national growth.

Professor Ellis (quoted before) reminds us that the period from 7 to 11 is "the period for language teaching. . . . It is also shown that during this period the verbal memory is good, reaching maximum power about its end, while children now are particularly interested in names."

Mrs. Barnes shows that the "indications are at present that names should by all means be emphasized in our early historical work". Biographical stories, first mythological and legendary, or of the fairy-tale order, then approaching historical truth, should be offered all thru the elementary course. There are ethical truths, poetical truths, typical truths, to precede exact historic truths so that in the latter the former may be recognized. The myth of Santa Claus, the story of Siegfried, or of Achilles, the legend of Odin or Baldur, contain truths of the former order, and their presentation will pave the way for an appreciation of the scientific verities of religious, social, or political development, in the progress of civilization.

Following is an outline of the course as it suggests itself to the author:

In the Lower Grades:

Study of the children's immediate environment as man's habitation. How the city or village grew from small beginnings; going, as suggested before, backwards in time, to periods when some things the child knows and perhaps thinks are as natural as air and water, were not; early history; Indians, primitive life, types and races of men.

Home-making in different lands.

The hunter.

The nomad.

The planter.

Compare with modern types: hunting, camping, farming.

Interesting stories, centering upon individuals, from general history.

Historical poetry. The interest of primitive peoples and children is pre-eminently epic, not lyric; consequently epic poetry, ballads, etc., are most appropriate at this period.

No attempt need be made at strict chronological order. The children's sense of time is undeveloped, and chronology has little or no meaning to them. Group the work around central themes of ethical import, without being too pedantic in concentration. Many interesting detached bits will be gathered up at this time, to be organized later.

National holidays and heroes can be taken up in between, in some way, as there is no logical co-ordination necessary, rather a co-ordination of interests, and a following up of the changes of emotional states. Care must be taken not to expand too much. Excursions should be undertaken to historical points, first of strictly local interest (site of first house, first bridge, etc.) then in the nearer and farther environment.

The city as it was, and as it grew up, may be built up on the sandtable. Local biographies and stories will give emotional color to the work.

Any widening of the geographical horizon leads to unknown fairy-lands where only imagination, more or less rational, can guide. First, there is no distinction made by the child between the possible and the impossible. He takes an intense interest in the wildest fancies which satisfy his desire to probe into all possibilities which his mind can construct. This is the time of Alice's Wonderland, of the Arabian Nights, of Gulliver's Travels. The child will revel in legends, myths, and fairy tales. Creation myths will lead over to the present conception of the earth as a globe. The stories of Columbus and Robinson Crusoe will prove helpful in this connection.

Then there are these topics to be introduced: travel, and means of travel; sailing, steamboats; wagons, oxteams, sleds, railroads. Buildings and wonders from everywhere. Constant reference is here suggested to the proposed work in geography as outlined in the previous chapter.

The topics of (a) Inventions (in connection with manual occupations—potter's wheel, loom, tools, etc.) and (b) the Domestication of Animals (pet animals discussed) will lead to a clearer perception of the factors in the gradual growth of civilization. For an organization of this knowledge as to space and time, we may well wait until a later period.

In the Upper Grades:

At about eleven when the true historic instinct dawns, we may enter into the colonial development of our own country, in somewhat more chronological order, and concentrate on an outline course in American history. The term "outline", however, must be rightly understood; it does not mean a skeleton, or an abstraction, but a brief and pregnant presentation of typical events and leading figures, dramatically and vividly pictured.

At puberty (VI to VIII grades), the awakening soul of the child strikes out on new paths. This is the colonizing, adventuresome, conquering, hero-worshipping, leader-following, nation-making period. The migratory instinct will manifest itself irresistibly in excursions, campings, and a generally reckless mode of life. The children will organize into clubs or gangs, as the case may be. This is the time when we should develop the idea of government and organization.

The history course should correspond to these interests. The nation-making epochs of history, and the great men of each, may be studied with profit. Take up the Nile Valley and the Mediterranean Basin as scenes of early civilization. These are some of the topics suggesting themselves: Rameses the Great—King Solomon—the Trojan War—Greek and Roman history in typical selections—Cyrus—the Migration of Peoples—the Vikings—Nibelungenlied—Siegfried sagas—Knighthood in Medieval Times—Hiawatha—Miles Standish—Bacon's Rebellion. This list illustrates the character of the themes that can now be taken up, to correspond to the natural interests of the children at this period, partly in cross-sections, partly in chronological order, to unfold the great panorama of nation building.

All along the literature of every epoch should be connected with the history work in concentric circles, up to the high school. This may be supplemented by a reading of the best historic novels and poetry, such as Iliad and Odyssey, Nibelungenlied, Sagas, Bible, Macaulay's Lays of Ancient Rome, Scott's, Eber's, Kingsley's novels and stories, Longfellow's epics, etc.

In conjunction with all this, the study of languages—German, French, Latin, later Greek—and their literatures, will exhibit the spirit of the different nations as it reveals itself in language, and will enable the pupils to read the principal historic documents, or typical selections from them, in the original.

In the VIII grade, the work in history may be rounded out by a new and comprehensive study by American history, introducing some original research, using perhaps the "American History Leaflets" (edited by Albert Bushnell Hart and Edward Channing), and similar material. Then there should be a course in civil government.

Civil government, if rightly taught, will not mean merely a presentation of so many facts and details, but the awakening of the right ethical principles in the breasts of the young, for their guidance in the performance of their duties as citizens and human beings. Civics and ethics are intimately related in this sense. And this is the time when, in the souls of the children, those ideals and principles, or habits of thought and attitude are forming which will give character and tone to their actions in after life. "The universal possession of ideals," says E. G. Lancaster, in Psychology and Pedagogy of Adolescence, "affords an excellent opportunity for the educator. There are different stages. The period (of adolescence) is one when command should give place to the presentation of an ideal, and an ideal adapted to the age and interest of the youth. In early adolescence there needs to be something heroic or self-sacrificing in the ideal. . ." for now, thru the very forces that make the youth long for adventure and tests of courage, thru his tendency to submit to leadership, his aboriginal selfish instincts take a turn towards self-renunciation, by way of devotion to some person or cause, towards surrender of self to the influence of altruistic motives generally.

History, to have its full beneficial effect upon character building, must be so presented that it opens up a perspective of human destiny to the child, and that it have an ethical bearing in reference to the problems which will confront him in his career thru life. Referring to the racial struggles, especially those between Europe and Asia, which seem to be drawing near, Prof. Barrett Wendell, of Harvard, in a review of Kipling's works, writes as follows: "When history, past or present, takes on such aspects as this, human affairs suddenly assume a new, startling, bewildering guise. At comfortable moments we are accustomed to assume that men of various ability control, first themselves, then one another, and finally the course of things on earth. At critical moments we are beginning to know with tragic certainty that men, like other earthly things, are to an incalculable degree the sentient victims of forces, or, if you prefer, of powers utterly beyond human control. . . . This struggle of ours is with the rising tide of an oceanic eternity."

Indeed we are in the hands of powers which we cannot control. Call these powers natural laws, call them God, call them with any exalted name you will, they are real and ever-present. Thus, the realization of human destiny in all its awe-inspiring mysteriousness dawns upon us. "Lo! Eternity is mirrored there!" This lesson our children must learn, even tho symbolically at first, for the full grasp of this idea, as far as it is within human reach, is left for mature age.

CHAPTER XI

Nature Work as an Objective Basis

SPENCER calls natural science the "knowledge which is of most worth" as it determines the regulation of our lives and the progress of humanity and civilization in every particular.

Nature must duly be considered as the apperceptive basis of all other work: it furnishes the only concrete experience outside of emotional experience.

As we have seen, natural science work is in reality the attempt to understand our physical environment, apart from the higher stages which lead to an appreciation of the nature even of our mental and moral qualities and functions. In the sense just spoken of, as referring to the physical environment, it is geography, or intimately related to, and based upon geographical apperception. This is at least true of the elementary stage.

In the high school there will be specialization and differentiation. The different branches of science will be studied separately and intensely, to prepare for a higher unity of conception: world-conception—the conception of an environment of the highest order.

The climbing of the ladder that leads up to this broad view of the universe is a slow process, and must begin with the training of those organs of the mind which mediate experience. In the beginning, and really thruout, science work is a training of the senses to observe quickly and exactly, and the training of the mind to interpret truthfully.

All concrete experience has an emotional value. In other words it appeals to our feelings and depends upon our interest. Experience not based on interest fails to become properly assimilated and is largely lost.

There is, however, unconscious absorption going on all the time which may eventually lead to later associations creating unexpected interests. Therefore, the proper environment will manifest its silent influence sooner or later. Yet for the complete and ready internalizing of the external, every sense impression must rouse in our soul a corresponding emotional vibration. This emotional element is what has been called interest.

Interest depends to a very large extent upon early experiences and absorptions. But there is another element in it: the mental condition which the individual has reached in the process of evolution, of awakening, or maturing. We must, therefore, study the successive interests dominating the child mind.

Prof. Earl Barnes made, some years ago, a comprehensive study of children's interests. He first referred to Alf. Binet's experiments on his two girls of 2½ and 4½ years respectively, as reported in the "Revue Philosophique", 1890. Judging from their answers to certain selected questions, their greatest interest in the common objects mentioned in these questions, lay in their *use,* and in the second place, in their *movements.* They almost never described an object by telling its color, form, size, material, or structure. They gave, not its qualities, but what it was good for, and what it could do. Of his own experiments Prof. Barnes says this:

"An examination of the papers showed that the answers could be grouped under the following general heads: USE, —a clock is to tell time; LARGER TERM,—a clock is a time piece; ACTION,—a clock goes tick tack; QUALITY,—a clock is pretty; PLACE,—a clock is on the wall; COLOR,—a clock is yellow; FORM,—a clock is round; STRUCTURE,—a clock has a face and wheels; SUBSTANCE,—a clock is made of wood and iron. . . ."

At 7, Barnes shows, use is far in the lead, larger term and action come next, but are still far behind. At 11, use is still the leader, while larger term has overtaken all the rest and is half way up to use. At 15, use and larger term are the leaders, larger term being a little ahead of use. Substance and structure have gained ground considerably since 11, and are now about one-third of use. He continues:

"Prof. Oliver P. Jenkins has called my attenion to the fact that most of the definitions of use also describe actions. The children describe an object by putting it in action, so as to satisfy their own particular desire or needs.* 'A horse is what takes us riding,' or 'A knife is good to cut bread with,' illustrates this combined use and action. . . . With the children of all ages substance and structure are hard to express. . . .

"They show that our natural history and object lessons with primary children if they are to appeal to their interests must start with the uses and activities of objects, gradually lead out thru what the things can do and what they are made of, to their structure, form, color, etc. In work with objects we generally start out with the superficial qualities taking what Agassiz found interesting to college boys and applying it directly to primary children. We take an apple and say: What is this? What is it covered with? What is on this end? What shape has it? What color is it? etc., etc. This study seems to indicate that if we are to follow the child's natural bent we should start with the discussion of what the apple is good for. One of our new readers starts out with: 'An apple is round like a ball;' this study seems to say that it would be better to start with: 'The apple is good to eat;' or, 'The apple grows on a tree.' . . .

"Whether one accepts the theory that each individual lives over the history of the race or not, it is still interesting to note that in Homer or Herodotus one finds this same tendency to dwell on movement, use, and substance."

Prof. Barnes' study shows, in his own words, that children's interests develop according to pretty definite laws which can be determined and used as a basis on which to build educational activity. It also shows that with young children we must not expect elaborate conceptions of the things about them. One or two of the most striking attributes of an object are sufficient to identify and describe it.

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*This is precisely the method Homer employs in his descriptions and comparisons. G.

His results were later corroborated in the main features by experiments made by the late Prof. Edward R. Shaw, altho there is some little difference in terminology.

We may put the results of these studies in another form. Use refers to the relation of the nature-material to man. It is thru the human element that we reach an interest in the world we live in.

This is functionally true of young minds. The purely intellectual interest in science is a late development and characteristic of the very few.

This suggests another principle of presentation. We must humanize the material by referring it in every possible way to the interests of the human soul, or connecting it with the human personality which appeals to the emotional interests of the child. Scientific discoveries e. g., will be fitly humanized by the biographies and struggles of their discoverers.

The primitive mind endows all natural forces with personal qualities. This is what has been called the animistic view of nature.

To the savage and the child the recognition of a difference between the self and the non-self implies a tremendous step in mental evolution. But even this recognition does not mean that the difference between the outside world phenomena and the inside world of feelings and thoughts is properly grasped. It involves an advanced intellectual insight in the causality of things to realize the difference between organic and inorganic processes and qualities. The immature mind will therefore naively endow the outside world, the non-self world, with the same qualities which is possessed by man himself. This is what is called the animistic view of nature, —a view which transfers upon external phenomena and objective facts such causes as may be working subjectively in the human mind and feelings. It is neither an easy nor a rapid process to emancipate the mind from this tendency, and we shall do best by taking the child on his own terms in this as in every phase of his development during the years of school education. In other words, it commends itself to make proper use of his animistic tendency in the teaching of nature, as other methods will fail.

Here we are again reminded of the necessity of grading the material and adjusting our methods of presentation in accordance with the successive natural instincts of childhood.

We may, in this work, rely upon the children's native love of nature. But, indeed, it is not classified knowledge they care for in the beginning. Inspiration must come before inclination.

"The great love of nature, compared with the distaste for science existing in the same individuals, is a blow at the present methods of killing scientific interests by the text book method of instruction. 640 were lovers of some form of nature, while only 290 of the same individuals liked any one science. This love of nature should be utilized to develop the scientific spirit in the pupil."*

The same thought is expressed by J. O. Quantz, in his fascinating study of "Dendro-Psychoses",* in the following language:

"Children are already and naturally in sympathetic *rapport* with nature. Our training of them must contain enough *letting alone* to allow this attitude toward nature to continue. This reverence for nature, and feeling of *at-homeness* with her, is one aspect of the child-like spirit which surely need never be outgrown. Scientific description and classification of objects is as artificial to child mind as similar abstraction and generalization would be to the lowest savage."

Altho experiments and other concrete experiences should be introduced in the earliest years in conjunction with geographical and other studies to secure proper training of the power of observation, and to build up a rational apperceptive basis, the symbolic and mythological element must precede the strictly rational. Myths, legends, and fairy tales will lead to scientific conceptions of the world, properly so-called, and we must not thrust the rationalizing interpretation upon the children in a pedantic way, but leave this to their own natural adjustment. Well says A. C. Ellis, in his "Philosophy of Education":*

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*E. G. Lancaster, "Psychology and Pedagogy of Adolescence," Pedag. Sem. V. I.

*Amer. Jrl. of Psych., IX, 4.

"The larger correlation in teaching the mythopoetic and instinctive with the scientific and intellectual views of nature, is now demanding attention from a new standpoint. . . . On every hand the reports of the higher teachers is that the little smattering of science has not only failed to give children the accurate knowledge desired, but has often seared off the budding interest beyond the possibility of revival in the serious later science work. . . . It is another illustration of the danger of applying the adult standard to children and of building a-priori educational ideals, instead of first examining into the mental condition of the child to see what he wants and what he can handle. If we had known ten years ago what is now known of children, it could have been seen beforehand that they have little or no interest or apperceptive organ for scientific theories till well on into adolescence, that their reason, interest in original sources and scientific accuracy, powers of making large inference, and critical judgment, eagerness to question and solve doubts of this kind do not rise till late, while the early school years are filled with an animistic appreciation of nature, with intense love of the usual mythopoetic and folk-conceptions. . . . The race unable to develop this myth in youth has failed to develop the philosophy and science in adult life. The question is then asked in all seriousness if the later healthy growth of scientific interest is not starved in its embryonic period when the child is started with the strong food of pure science and not fed first upon the pap of nature myth and folk-lore. Certain it is that studies of children show them, in spite of our efforts, often saturated with these notions and ever in sympathy with them. . . ."

It has been objected to a course of this nature that it will lead the children to take a superstitious view of phenomenal life. But again we must not impose the standard of the rational adult upon the immature child. What appears a superstition to us is a mythopoetic conception from the standpoint of the undeveloped mind. A mythopoetic view becomes a superstition only when it persists in surviving the development to maturity. Superstitions must be lopped off, but it is doubtful whether a child whose attitude is rationalizing from the start, can be considered a pleasing and wholesome creature. There is danger that such a child will never grow up to have ideals, or, for that matter, genuine science and philosophy.

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*Pedag. Semin., Oct., 1897.

We need not be afraid of these early superstitions, and should realize how obstinately, in spite of our efforts at times, they will take possession of our children. If we oppose them injudiciously, we may lose the power of influencing the children altogether.

It is unnecessary to emphasize that, at the proper period, this symbolic treatment must be made to lead up to scientific view-points. We must not allow the children to "get stuck" in the myths, altho our most modern experience may show that some people will never outgrow the mythological stage.

In introducing the objective and rational element, however, it is well not to forget that experiments in school will forever be narrow and typical, and consequently limited in application. The myths, even at this stage, will essentially assist in giving the elementary mind the broad outlook which the experimental treatment will fail to give. And even in the higher stages, experiment can cover only a small portion of the entire ground, and will mainly serve to give a key to the appreciation of authoritave teaching. Thus, experience will be forever supplemented by belief, thru book study which must be taken on faith. Truly, there is an essential difference between the simple faith of the primitive mind, and scientific faith, in so much as the latter is at all times subject to proof, on the basis of the typical experience spoken of.

The concrete work itself should be varied and typical, as said before, and it should call forth the self-activity of the pupils, not merely their contemplative powers. In other words, they should not be lookers-on in the experimental efforts comprised under this head. Some of the experiments may have to be performed by the teacher for the class to observe; but the greater part must be done by the pupils themselves. These experiments and observations have a distinct relation to manual training exercises as has been shown in previous chapters.

The experiences conveyed to the pupils by this concrete work may be divided into two groups:

(1) *First-hand experiences.*

These will be gathered not only in the laboratory or school room, but in school and kitchen gardens, in the shop, and on excursions. School gardens will furnish the basis for horticulture, kitchen gardens will be the first step to agriculture; both will lead up to a practical study of domestic science, which will later include physiology and hygiene. They will also offer opportunity for the introduction and use of some primitive, typical occupations and tools; in the working of the ground, and in the nursing of plants, they will use the hoe, spade, rake, budding knife, pruning shears, etc.

Out of the narrow precincts of schoolroom and school garden, botanizing excursions, trips to study the configuration of the country, and the animal life characteristic of it, will take the children with their teachers into the woods and fields, the hills and valleys of the surrounding country, and in later stages, even to more distant regions. It has been shown that these excursions, besides being instructionally valuable and ministering to healthful exercise, answer a natural instinct of the children of this age: the migratory instinct, "die Wanderlust" of the Teutonic races, and that a neglect of recognition of this tendency must necessarily work mischief, and breed truancy. Says Mr. L. W. Kline, in his study of truancy:*

"The great majority went to river, pond, brook, to fish, skate, swim and play in the water. Next in order comes the woods and fields, then to play ball and other games, to see parades and be in great gatherings and on the street. Many are described as having an immoderate love for sight-seeing, excitement and outdoor experiences."

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*Pedag. Semin. V.

This sight-seeing might well be made an organic element in school instruction, if intelligently managed, for it affords a vast amount of special experience. But this belongs only indirectly under the head of science teaching. However, the city streets, the fields, the forests, and the brookside; museums, zoological and botanical gardens, aquaria, factories, machine shops, etc., etc., furnish an inexhaustible opportunity for concrete experience.

These excursions will be the occasion for gathering numerous specimens of all kinds, illustrative of the territory explored. The world of plants and animals, of rock and mountain side, of industry and trade, will thus be carried concretely into the schoolroom; and collections of this kind, made by the children themselves and fraught with live associations, will be a hundredfold more valuable and impressive than ready made collections, or museum-like specimens, brought to them.

Collections need not be of dead things, or dried and withering things only. There ought to be living plants in the schoolroom; and there might be living pets about at home and in school: rabbits, or birds, or fishes; terraria, aviaries, aquaria.

Then there are:

(2) *Second-hand experiences* which the skill and care of the teacher will make as vivid as possible. Among the means to produce these are colored pictures, photographs, and representations of all kinds; lantern slides and moving pictures; and in the largest measure, books and the live word of mouth from the inspired teacher.

This caution is necessary in all science teaching to young pupils: do not classify too early, and always respect the apperceptive basis of the child.

The mental and moral injury done by faulty methods is the more deplorable as the final aim of true science work should be to develop in the pupil, in the first place, a scientific method of research and thinking, and the scientific attitude generally; and secondly, that reverence for life in nature, and that ethical attitude which are the foundation of true religiosity.

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*As to Nature vs. Curator, cf. Chap. II, p. 27.

The ethical, reverential attitude, of which mention has been made and which constitutes the most precious gain of genuine science work, is well characterized by the following lines from two of our master minds and prophets whose words need no comment:

> To him who in the love of nature holds
> Communion with her visible forms, she speaks
> A various language.
>
> (Bryant, THANATOPSIS).

> Flower in the crannied wall,
> I pluck you out of the crannies,
> I hold you here, root and all, in my hand,
> Little flower—but *if* I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.
>
> (Tennyson).

CHAPTER XII

Language Teaching

GRAMMAR is elementary logic as Bain has it. In an able article on the "History of English Grammar Teaching" (Educational Review, XII, 5) Mr. F. A. Barbour puts the same thoughts in the following words: "Grammatical analysis . . . not only exemplifies etymological changes and rules of syntax, but it is a critical investigation into the logical structure of sentences. It cannot be committed to memory; it is a direct exercise of all the logical faculties." That the English language, almost uninflected as it is, presents particular difficulties to one who is not well trained in logical reasoning, is also shown conclusively in the same article, and is a fact too well known to need further demonstration. "In Latin the form of a word is a direct aid to recognizing its function in the sentence. Now the mere fact that in English the pupil is obliged to get the meaning of the sentence from the order of the words, and from a logical insight into the content of thought with little or no aid from the form of the words—this very fact makes the study of English grammar a more abstract and difficult disciplinary subject than the grammar of any highly inflected speech." (Barbour, loc. cit.)

The difficulties appear to be highest when definitions of the parts of speech are attempted. To pick out the subject and predicate, to find modifiers and adjuncts, to distinguish between simple, compound and complex sentences, and the different kinds of phrases, puzzling as the task often is, may perhaps be learned with some intelligent effort by bright, linguistically efficient boys and girls of the highest grammar grades, if careful questioning by the teacher points the way and practical exercises are employed to give skill. But to recognize a noun and to define it in distinction from an adjective or verb, is a trying task even to the skilled grammarian. In Latin and Greek, inflection is so highly developed that it is impossible to mistake a nomen for a verbum, even though nomina adjectiva and nomina substantiva may not always be readily distinguished. In German, nouns can at once be recognized by the fact that they begin with a capital letter and by the use of the gender-indicating article with them; when used to modify another noun, they are never used adjectively, but are invariably joined to the noun they qualify to form a compound noun, or are employed in the form of an apposition. But in English the same uninflected word may be used ad libitum now as a noun, now as an adjective or verb, and some nouns even as prepositions, conjunctions and what not. Compare the following sentences: "An *abstract* of title is a document." "*Abstract* doctrines are difficult to understand." "All philosophy that would *abstract* mankind from the present is no more than words." Here the word abstract occurs three times, each time in a different role, the last time even with a different pronunciation. In the title "The New York Daily Evening Messenger," the proper noun "New York" and the common noun "evening", are both used as qualifying adjectives. These are examples of very ordinary occurrence. But there is a large number of less frequent expressions which have the effect of veritable grammatical puzzles—the glaring headlines of newspaper articles are full of them. Many words have their puzzle character enhanced by the fact that they may not only belong to different parts of speech, but that they have more than one meaning, or that a different pronunciation gives them a different significance. (Cf. bow, sow, read, etc.)

It requires little thought to realize that the difficulties presented by such cases are indeed insurmountable for young children with minds untrained in logical discrimination. And yet one of the first things they are expected to learn in grammar is a series of definitions of the parts of speech. These definitions are, as a rule, very unsatisfactory and misleading; exact definitions require so high a degree of analytic acuteness and insight that only trained grammatical minds can frame and appreciate them. There are, besides, few grammars for school use that agree on the definition of some of the most common words of the language. To illustrate: Such words as "this" and "that" (in "this book" and "that hat") are called by Swinton's Grammar (1877) and Whitney's Essentials of English Grammar (1877) "demonstrative pronominal adjectives"; by Metcalf's English Grammar (1894) "demonstrative adjective pronouns"; by Maxwell's Advanced Lessons in English Grammar (1891) simply "adjectives" (p. 121). The last named Grammar, however, names "which" and "what" when used with a noun (as in "what dignity," "which numbers") interrogative pronouns. In all these grammars "my" and "mine", "your" and "yours", etc., are merely given as the possessive cases of "I", "you", etc., respectively; while their independent adjectival character is recognized by West's Elements of English Grammar (1893). And thus, examples may be multipled, even from the most modern language books for schools.

Now what degree of power does a child possess to grapple with the tasks of grammatical discrimination and analysis? In other words, in what measure does the development of the logical faculty in the child correspond with the demands usually made upon his reasoning power?

In ordinary school practice the child is expected to be able to assimilate any kind of knowledge presented to him. He is considered, so to speak, as a small adult; as endowed with pretty much the same faculties as the grown-up mind, only perhaps, on a smaller scale, or in an untrained condition. In most cases the teacher will treat her pupil as if the latter were simply ignorant, owing to his lack of years, and as if the business of teaching were merely to pour into his empty head that amount of knowledge and information which is thought necessary, yet wanting. Thus the child of school age is regarded as equally able as the adult to learn, that is to comprehend, any branch of human knowledge, no matter to what activity of mind it appeals. It is therefore thought perfectly feasible, if only the necessary time is granted, to teach the so-called elements of so abstract a discipline as grammar, even to young students. We may be reminded, by the way, that what is meant to be a presentation of the elements often takes the form of a highly abstract synopsis of the science of grammar—a synopsis which in its totality can really be mastered only by very mature minds.

That the development of the child-mind is, in point of fact, a process of maturing; that the young child is by no means a logical being, but pre-eminently imitative; that his knowledge, and his mode of thinking, are fragmentary; that the power of reasoning is of slow growth; that there are nascent periods in the child's mental evolution, when new forces manifest themselves in the form of new activities and interests; that these periods of increased power alternate with periods of seeming retrograde, or at least suspended development, but which are in reality times of latent growth, when the child's physical and mental forces are gathering strength for the next important stride forward; that the power of assimilation is conditioned by the laws of apperception and interest; and that all these changes and conditions are intimately related to, and dependent upon, the physical growth and development of the child: all these facts, which have grown old with the race, now force themselves upon the teachers like a new revelation, born out of the new enthusiasm for a more systematic study of the child soul. This new recognition of the laws governing the child's powers of acquisition and assimilation, will, of course, gradually affect the school curriculum, and new standards, and a new sequence of topics will result therefrom.

To a young child, logical order, or logical requirements, mean little. His knowledge being fragmentary, he has no conception that anything essential is wanting to complete a logical whole, or to meet a logical demand. There is nothing extraordinary in a fairy-tale to the conception of a child, impossible as a hero's exploits may seem to us. The fabulous phoenix, with its resurrection from the flames; or the creation of armed men out of dragon's teeth, do not present any logical difficulties to the young mind; even if it doubts their truth in matter of fact, this is merely because it has learned to appreciate the charms of fanciful invention, and not on account of their logical absurdity. The ability to appreciate law and order, and to reason out possibilities and impossibilities, to distinguish between desirable, indifferent, and necessary things,—presupposes a large stock of experiences stored up in the brain, with the association fibres well established between them and the relation of cause and effect frequently observed and sounded. The absence of these prerequisites causes the child to make so many blunders in grammar, and to remain unimpressed by what the adult mind conceives to be a self-evident logical necessity. The child of pre-pubertal age will rarely understand why some verbs are transitive and require an object; and in countless other ways teachers will meet with an apparent obtuseness which leads to so many well-known grammatical mistakes. The learning of rules does not help this condition. Some minds will never outgrow this stage of non-reasoning.

Let us not mistake the child's early interest in the causal idea for a sufficient evidence of logical ability. The child asks "Why?" at a very early period of his life; he is a born investigator into organic causes. But whether these causes are logical causes, necessary causes, inevitable causes; whether the same cause must always have the same effect, and whether a cause is potent in all its relations, being modified only by other potent causes; all this which characterizes abstract reasoning, is utterly indifferent to him. He is usually satisfied with any cause that you will state to him, even if it be logically absurd. Not until his manifold experiences will have assumed form and order in his mind, will he gradually learn to appreciate what is termed the true causal nexus and become capable of making logical inferences, at least in matters of abstract thought.

Young children are not as apt, as many may suppose, to profit by their errors. In his instructive "Study of Puzzles," in the "American Journal of Psychology" (July, 1897) Ernest H. Lindley has convincingly shown that in the attempt to solve problems, children will have to repeat their errors many times before their significance is understood. Their mode of procedure is essentially dependent upon habit and imitation; "recency and vividness" of concrete experiences are responsible for most of their notions and acts. If reason is a perception of relations, then young children are little above the "sense trial and error" order of procedure; and while they may perhaps early learn to perceive simple relations and make simple adaptations thereby, fatigue, temporary loss of interest, etc., may produce a relapse into the animal method of absolute non-reasoning (loc. cit. p. 479). "Tests of a number of children varying in age from 3 to 12, show surprisingly little logic" (p. 476).

Experiments on mathematical reasoning have been reported on by John A. Hancock, in the "Educational Review" of October, 1896.

If such lack of insight into simple mathematical relations can be observed—and no teacher of arithmetic will fail to observe specimens of it—it is not to be wondered at that the more difficult problems of grammar, involving not only some subtle logic, but also an appreciation of etymological development and syntactical peculiarities—will encounter still greater "obtuseness" on the part of a large percentage of pupils.

The investigations just alluded to, and which are corroborated by many other tests, indicate that there are critical periods in the development of the child's mind—periods of rapid growth, preceded or followed by periods of apparent dullness. Whether physical growth and mental growth progress in inverse ratio or not, it is as yet an open problem; the facts at our disposal are somewhat contradictory with regard to this point. But all tests point to the *eighth, tenth,* and *twelfth* years as times of change. These stages correspond broadly to periods of marked significance in the develment of the brain. According to H. H. Donaldson ("The Growth of the Brain"), the brain attains almost its full weight at the eighth year of a child's life and, with some fluctuations, the maximum weight is reached between the thirteenth and fifteenth. "The young child is a reflex and automatic organism. . . . The child even so old as eight years is rather like an animal in method of adaptation than like the human adult" (Lindley, loc. cit. p. 480). His mental characteristic is *imitativeness*. "This does not degrade the mental status of children, but rather dignifies imitation, or suggestibility, or whatever this instinct may be called as that psychic element which has largely shaped human destiny whenever the higher intellectual faculties were pushed in the background." (Cf. Prof. Edw. A. Ross, "The Mob Mind," Popular Science Monthly, July, 1897.) However, from the eighth year, a beginning of true reasoning, that is the perception of simple relations, may be observed.

In a study of children's superstitions (Clara Vostrovska, Studies in Education, I. 4), the children's natural inclination towards absurd beliefs and their inability to do abstract reasoning is strongly emphasized. But while it is shown that "few children know how to generalize", and that "each case is a separate case to them", it is also demonstrated that the "change from belief to unbelief" occurs "about the tenth year." With regard to matters of discipline, rules of conduct and punishments of transgressions, we find that "the great majority of young children do not discriminate kinds and degrees of offences." (Studies in Education, I, 9, p. 348). Here the same absence of power of logical discrimination and of the ability to generalize. Yet in a study of "Class Punishment" (by Caroline Frear, loc. cit.) we read: "It is interesting to notice that the sentiment that the class ought to co-operate with the teacher in the detection of guilt increases with age, from 39 per cent. before 10 years of age, to *50 per cent. after ten years.*" Thus the tenth year is again established as an important turning point in the child's mental development. For without a keener appreciation of the need of conscious adjustment, of the relation of cause and effect, of mutual obligation, dim as it yet may be, this new social sentiment could not spring up. It marks the dawn of true reasoning. Other studies point the same way, and Earl Barnes (loc. cit. p. 356) recognizes the age of from ten to thirteen as a period of great mental activity, tending to develop the power to think in logical sequences, crude as these attempts may yet be. During this, the ***pre-pubertal period,*** we shall observe in the child glimpses of that critical tendency which at the age of pubescence and adolescence proper will induce the young man and woman to doubt and revise most of their notions and beliefs hitherto accepted upon the authority of teacher and parent, and to establish new association tracts in accordance with their bold attempt at independent thinking. Now, logical thought, radical reasoning, often surprisingly unconventional, often producing even a revolutionary attitude towards established modes of thought, will assert their influence powerfully.

If we allow ourselves to be guided by the results of these investigations, in laying out a course of language, or specifically grammar, instruction, we must first take care to remove from the curriculum of the lower and intermediate grades all such exercises which require strictly logical processes of thought. We may even doubt the wisdom of too early an introduction of *any* kind of formal language training before the eighth year. Might it not be safer to devote all the time in the first two grades of schoolwork to objective and sense training, to the building up of clear concepts thru nature and manual work, including geometrical exercises of a concrete character; and to purely oral exercises and drill in oral expression,—postponing the beginning of reading, writing, and number work proper until the pupil enters the third grade? The advisability of such a course ought to be seriously discussed as with the present mode of procedure so much precious time and energy seem to be wasted which could be put to better advantage, and as the children after having passed the first critical turning point of their development would perhaps be much better able to cope with the perplexing tasks of formal instruction. But be that as it may, all are agreed that with regard to language training no successful attempt can be made in these early years to teach rules of grammar. Main stress will have to be laid upon opportunities for unconscious absorption and imitation of good language, from the speech of parents and teachers, by reading to the children, by having them commit to memory carefully chosen selections of poetry and prose. The dramatic instinct of the child which is so prominent in the early years, will make him delight in impersonating different characters, professions and occupations, thus learning to master a number of terms and expressions peculiar to them. Animal and folk-lore should be turned to account, fables will be helpful, and even flowers and minerals can be inspired to speak to the child their various languages. A number of simple rules and directions—in correcting the child's speech—such as have no particular logical reason but are essentially idiomatic, can be emphasized now, and will be obediently respected by the youthful learner. For this is the age when he has implicit faith in authority, and will believe things to be right or wrong just as he is told, without question. Constant practice, varied in form, to command the interest of the pupil, will lay the safe foundations for future language study; but there must be a thought content to every word he is made to use.

Every observer of children knows that their first attempt to venture out on the field of independent word-formation and inflection is characterized by the *method of analogy.* This, while assumed to be a logical process, and undoubtedly containing a germ of true reasoning, is clearly a mode of imitative activity. The child will conjugate "I bring, I brang", as he does "I sing, I sang," without doubting his perfect right to do so. This tendency to analogize, as being the first dawn of reason, will be taken advantage of by the skillful teacher to fix the regular forms in the child's mind, not dwelling, of course, on grammatical terms. The danger arising from the same tendency concerning the so-called irregular forms will be largely obviated by simply appealing to the authority of good usage, and making the seemingly anomalous forms, *types* to be followed in the formation of new *analogical sets.* But this can be done to advantage only during these early years, before the child's first awkward attempts to reason may confuse his idiomatic speech. This is another argument in favor of the belief that formal studies be best postponed until after the eighth year, so as to gain time for a firm grounding in the idiomatic use of the language. As the memory is very active and tenacious at this age, these teachings will be a gain forever.

With many children, if not with all, the study of another living language in addition to the vernacular will prove helpful. Such study is by no means an overtaxation, and will in no wise injure the mother tongue, if competently taught. On the contrary, these early years are the very ones when languages are acquired with remarkable facility, and the practice of many foreign families of the nobility where children are expected to converse in two languages at an early age, is proof that there is no difficulty. And it will be noticed that the change from one language to another, while it affords great pleasure to the children, answering to their play instinct in a particular form, will also stimulate their appreciation of idiomatic differences; it will decidedly strengthen their "feeling" for the idiomatic characteristics of their own language. The author has been frequently struck by the fitness of expressions chosen by young children from English speaking homes, in the rendering of German phrases in idiomatic English. They hit the right translation intuitively. Class instruction will here prove beneficial inasmuch as each child will thus be benefited by the joint linguistic experiences and instincts of all the rest.

This remarkable aptness of young children to catch the spirit of the language need not surprise us. It was in the childhood of the race and of nations when language and languages were created and developed. These creations and developments were due to certain physiological laws inherent in human nature,—laws which are now being more and more studied and understood, but of which the language-makers themselves were of course entirely unconscious. Language is a growth, as it were, and we say that humankind created language by following the language-making instinct. There are general laws governing all languages; and there are peculiarities found in individual idioms, also due to deeper causes. Thus each language has a "genius" of its own—each pictures a different attitude towards environment, a different reaction to external conditions; and this difference of "genius" is commensurate to the degree of variation which the tribe, or people, whose product it is, represents among the multitudinous species of the human race. In other words, each people's language reflects that people's racial characteristics, its individual life-attitude, resulting from that "struggle for existence", that adaptation to environment, which fixed its status as a separate type. But this "language-making instinct" was especially active and effective in the early days, before the type was fixed, when everything in the type character which was to be, was formative, potential, flexible.

This same condition is observed in the child of the age we speak of, which is pre-eminently a formative age; it even continues through the pre-pubertal years. The language making instinct of young children is very marked, and manifests itself at one period in the production of distinct child-languages, totally different from the vernacular, and sometimes framed by children spontaneously in addition to the learning of the mother tongue; and at a later epoch, by the child's lively interest in the invention and use of multifarious "secret languages". Under specially favorable circumstances, the first mentioned child-language "would become the mother tongue of a new community and of the nation that would spring from it" (Horatio Hale, quoted in "Children's Secret Languages" by Oscar Chrisman, The Child Study Monthly, Sept., 1896). This wonderful faculty of child-nature as Chrisman calls it (loc. cit.) ought to be led into the learning of useful foreign languages so that the specific energy at our disposal may not go to waste. And as the young mind is still relatively free from the conventionalisms which in later years beset and obscure the clear fountain of the national genius, and represents more purely the original instincts that differentiated the type; and as the child of this age repeats the formative "culture epoch" of his tribe, it is not surprising that he is ready to "feel the pulse of his mother tongue;" to develop that "feeling for the peculiarities of his language which enables him to grasp intuitively the intricacies of its idiomatic phraseology."

With the acquisition of the art of reading and writing a new element comes to the assistance of language study. Visual and motor impressions, from the printed page and from the attempt to reproduce it in writing, are of inestimable value for the awakening of language concepts. As, in the previous period, careful enunciation and scrupulously correct language on the part of parent and teacher were powerful agencies for establishing in the child's mind a feeling for corrections of expression: now with the throwing open to the youthful learner the golden gates of the vast and rich domain of literature, noble examples of what there is best in his language must surround and inspire him from the beginning. It is not necessary here to dwell at length on the principles which must guide the teacher in the selection of reading matter for school use; suffice it to say that only such matter is permissible which the child can learn to admire and imitate. The language of his immediate surroundings is now supplemented by that used, exalted and made immortal by the great minds of his race. Again his native imitativeness will be the efficient factor in his appropriating these great models for the sake of his own self-expression. His power of discrimination between adequate and inadequate expression will be strengthened, and his natural tendency towards the beautiful, the rhythmical, the melodious, will receive a new stimulus. *Children need much more poetry than prose;* and much more fanciful, rhetorical, epic, rhapsodical prose than common-place narratives and descriptions.

At the dawn of civilization and literature, the poet was rhetor, rhapsodist, historian, naturalist, philosopher, teacher; mastery of the language appeared first in the form of poesy. And youthful minds to this day delight the most in rhythmic style: in the measured step of the epos and the sublimely simple language of the classic tale and folklore, the wild movement of the dithyramb, the sweet numbers of lyric song; and this poetic disposition, wedded to their love of action, gives the child and the youth that intense fondness for dramatic expression so often observed.

It suggests itself, then, that young children should read real literature—pieces composed by the masters of literary expression; and that poetical and dramatic compositions should have the preference. May be that in imitation of these models the child's language will at first be a little florid and high-flown; no matter—what is exuberant and rank in it, will soon enough be trimmed down by the more prosaic influences of later years.

And let us not undervalue the intense enjoyment the child takes in *humorous* things, nor forget that the sense of humor is not merely the merry monarch of idle pastime, but truly a promotor of intellectual development. To appreciate a joke means to see a relation between ordinarily unrelated things. Children's enjoyment of humor, therefore, has not only an emotional value, giving their minds an optimistic trend; it also illustrates their "proneness to explore all the possibilities of human life" (G. Stanley Hall and A. Allin, "The Psychology of Tickling, Laughing and the Comic", Amer. Journal of Psych., Oct., 1897) and is a legitimate outcome of the play-instinct. It represents a distinct form of intellectual play, as valuable for the evolution of logical thinking as the puzzle interest of which more will be said hereafter. Hence there should be a goodly admixture of humorous reading matter, from the funny nonsense of Mother Goose rhymes and "Alice in Wonderland" to the scholarly pleasantries of the "Autocrat of the Breakfast Table", and were it only for the purpose of elevating the children's taste in this direction, and to guard them from falling into the vulgar modes of thought towards which reckless witticism often leads.

The cardinal thing for language development is the more or less conscious absorption of the model of expression set before the children; and this absorption will again be greatly helped by committing to memory a number of well-chosen selections. There are, however, other devices.

In the first place let us remember that correct speech is greatly benefited by perceiving and recalling to the mind the correct *form* of the word. What enunciation is for oral expression, *spelling* is for the written form of language. There is a distinct relation between spelling and grammar, and error and muddle in one will injure the other.

The vividness of the mental images of word-forms depends largely upon visual and motor impressions and memories. Relatively few people (often those that have a peculiar ear for music) are ear-minded and the ear-minded ones among the pupils of an elementary school receive enough of the attention due to their peculiarity if teachers are careful about enunciation. But even they will have their word-images made more distinct by accompanying motor memories. These facts show the absurdity of the tiresome, monotonous, one-sided sing-song of oral spelling. How unnecessary this is, is also made clear by the circumstance that few teachers will follow this insipid practice when they teach a foreign language. Who has ever heard of a French, German, Latin or Greek spelling match? Spelling proper is of use mainly for writing, and as we learn to swim by going into the water, we learn to spell by writing words. Constant practice in writing, first by copying, and then by composing.

Copying is a very valuable exercise indeed. It goes without saying that there must be discretion in the selection of copies. Not everything needs to be copied; but many of the selections which have been chosen for memorizing; proverbs ("epigramatic condensations of applicable wisdom which have long served as a sort of moral code of direction to mankind" —Anomy., Frazer's Mag.—and which are admirable examples of concise and pregnant expression); fables and the like may well be copied. This copying, alternating with dictation exercises covering the same ground, will intensify the mental images of the selections and help memorizing and preserving them. If more of intelligent copying and dictation were practiced, teachers would experience less difficulty in having the pupils copy simple directions from the blackboard, or make notes of very ordinary explanations. How can a child whose mental images of the words and forms of his language are indistinct, confused, and fragmentary, be expected to use this language with an adequate degree of correctness?

Spelling and grammar go hand in hand in many grammatical forms. The tendency of the child to build words and forms by analogy will here again be helpful, and the lists of words and inflections based upon common type-forms can be made to the delight of the children. It is true that many forms appear arbitrary and will seem to defy attempts at analogical classification. But, if introduced as *new types,* as suggested before, children of this age will, as a rule, accept them unquestioningly. Reference is here made not only to spelling lists as such, but to lists which have a grammatical significance. Thus, singulars and plurals may be contrasted, in lists somewhat like these:

First Type:	father	fathers
	table	tables
Second Type:	dish	dishes
	fox	foxes
Third Type:	man	men
	woman	women, etc.

In a similar manner, lists of comparatives and superlatives, of possessive cases, etc., may be prepared. Verb forms can be tabulated thus:

First Type:	I praise,	I praised,	I am praised.
	I love,	I loved,	I am loved.
	I hate,	I hated,	I am hated, etc.
Second Type:	I regret,	I regretted,	I am regretted.
	I shun,	I shunned,	I am shunned, etc
Third Type:	I bend,	I bent,	I am bent.
	I send,	I sent,	I am sent, etc.

and so on.

Such lists ought to be copied in notebooks kept especially for this purpose, and added to as occasion suggests. It need hardly be said that only such words must be given a place on these "growing" lists whose meaning and use is satisfactorily understood; in other words such that form the stock vocabulary of the children, and have been frequently read and used by them.

Some general notions of name-words (nouns), words denoting quality (adjectives), and words denoting action (verbs) will have sprung up in the minds of the children by this time, under the careful guidance of the teacher. Exercises in contrasting words like "pro-duce" (verb) and "prod-uce" (noun) in sentences and then tabulating them will throw the difference of their respective functions into bold relief. But care must be taken not to make these notions formal or inelastic; no definition or general rule should be demanded, the less as by such crude definitions as were alluded to before, the children would only learn to recognize *some* nouns, verbs and adjectives, but by no means all. The greater number of verbs, e. g., they have in daily use would thus escape recognition. True, there will perhaps always be a small percentage of precocious or otherwise intellectually exceptional children in a class; if these do see relations and can be helped to derive a general principle from their observations and concrete exercises, well enough for them; they must not be repressed. But *their standard* cannot be the class standard. The aim at this stage can only be to establish *good habits of expression,* to take advantage of the child's natural tendency to analogize, and to give their incipient ability to discern simple relations, sufficient stimulus.

As the *greatest effort* will be made in the direction of the *greatest interest,* we should not overlook the intense delight which children take in riddles and puzzles of all kinds. What is presented to them in puzzle form is sure to arouse at once their alert attention. Lindley's study of puzzles (loc. cit.) shows that "the riddle interest proper, beginning at 4, culminates at 8, 9 and 10. Language puzzles exclusive of riddles are most in favor from 12 to 15." Let us mark the culmination periods which coincide with the critical periods previously pointed out. The puzzle interest should certainly be utilized in language teaching.

It is evident that many riddles which deal with letters and syllables, can be made helpful in the teaching of spelling. Many riddles, however, describe "the object in question in a paradoxical or ambiguous way" (Lindley). This suggests the use of the riddle as a device to detect the character of subject, object and predicate. Again care must be taken to avoid formal drill which would only kill the interest just kindled and serve no purpose. Below the tenth year, when children are most interested in what Lindley calls the riddle proper, namely a simple question (as: Lives without a body, hears without ears, speaks without mouth, to which air alone gives birth; what is it?—Echo), this exercise may simply serve to loosen the children's intellectual joints, as it were, and prepare them for the more trying tasks of the next period.

The tenth year is again the turning point. From now on thru the pre-pubertal period (a period of uncertain length, differing in the two sexes and in individuals) the interest in the other classes of language puzzles is marked. These are really nothing else than more elaborate riddles. Lindley enumerates the rebus, the conundrum, the enigma, the charade (also in its dramatic form); word squares, diamonds, etc.; the acrostic; logogram, metagram, decapitations, curtailments, retailments, hidden words, and the like. "Altogether there are more than 30 species of language and word puzzles. It is obvious that many of these not only challenge ingenuity and involve the logical processes, but also have points as information tests." It would be a welcome undertaking if someone would collect puzzles, and grade and arrange them in their bearings upon different branches of instruction; and with regard to language training as such, as orthographical, word building, subject, object and predicate puzzles, etc. The skillful teacher will soon find a way to make good use of them.

For a clearer understanding of the *educational value of puzzles* Lindley's article should be consulted. The following quotations must suffice to illustrate the bearing of this intellectual play upon mental development of children approaching the most critical period of their life. "It is fair to presume a priori that the systems of cortical association fibres now begin to develop more rapidly. . . . Experimental data concerning growth of reasoning power . . . furnish corroboration for the above neurological assumption. . . . May not this pre-pubertal intellectual play activity bear direct propaedeutic relations to adolescence? The resulting flexibility of mind, due to the breaking up of narrow modes of thought, and the accompanying increment of gain in strength and poise of intellect and will, may help somewhat to mitigate the dangers of the 'new birth'."

By working enthusiastically over puzzles the child's ability to grasp relations quickly, to reason logically, is greatly strengthened, and he becomes ready for formal instruction. We are reminded by Lindley that twelve is the age when

Rousseau would have Emile, after years of freedom from restraint, placed under formal tuition.

Lindley's study also demonstrates that even in this point the development of the child is parallel to that of the race. Riddles have played an important rôle in the childhood of mankind, at a time preceding intellectual maturity. "The making of riddles," says Taylor (Primitive Culture, I) "requires a fair power of ideal comparison, and knowledge must have made considerable advance before the process could become so familiar as to fall from earnest into sport." Let us be reminded of the riddle of the sphinx; of the part riddles play in Fairy Tales; and that the rebus is perhaps only a degenerated form of picture writing and hieroglyphics.

The pupils will now be ready to discern the grammatical relations of words in a sentence. *The sentence will become the starting point of formal grammatical instruction.* Whether it is best, as Franz Kern suggests, to begin with the finite verb, as containing the essential elements of the sentence, the sentence with its subject, predicate, object and other modifiers, will form a firm basis of elementary analysis. This analysis must remain general at this stage, and omit confusing details. Observations will illustrate to the child the simple relations of these parts of the sentence, and of substantive, adjectival, adverbial, and verbal elements to one another, without the need of formal definitions.

It is open to discussion whether *diagramming the sentence* will contribute much to the clearness of its conception. If there were a way—interesting to the children as well as illustrating the *organic facts of the sentence*—the weight of the argument would be in favor of the diagrammatic method. But the ordinary diagram forms are utterly unsatisfactory; they ignore the *evolution of the thought* as expressed in the sentence; they regard the latter from the standpoint of formal grammar—that is, as "a thing dead and static, a manufacture instead of a growth" (Gertrude Buck, "The Sentence Diagram", Educ. Rev., Mar., 1897). Miss Buck reminds us of the evolution of the sentence, from the interjectional expression of a homogeneous feeling (the single word of the child is more or less interjectional in character, at any rate, stands epigrammatically for the expression of the entire thought) to a differentiated, tho stenographic assertion of an empirical judgment that has crystallized into a logical concept; and she suggests a tree-shaped diagram. It is well to consult the writings of Franz Kern on the subject of sentence analysis ("Die deutsche Satzlehre," Berlin, 1883; "Zur Methodik des deutschen Unterrichts," 1883; "Zustand und Gegenstand", 1886); he was the first to demonstrate the untenability of the copula-idea. However, it may be best to postpone diagramming which presupposes a good deal of exact discrimination, till the time of secondary instruction; for the *child's* standard of exactness is considerably lower than the adult's and can be prematurely advanced only at an expense of time and energy better employed in other directions.

The so-called compound sentence will hardly need special treatment at this stage; a recognition of the co-ordinated relationship of parts found there will suffice. The complex sentence can be treated as what it really is, viz., an expanded simple sentence, the expansion being produced by substituting "dependent" sentences (clauses) for single words or phrases. Of course, it is not strictly true that such clauses were consciously substituted by the writer or speaker; the process is rather this, that a clause is used when a single word or phrase would be inadequate.

It may be added that the common practice to dissect selections from literature by so-called analysis, deserves to be denounced as truly barbaric; selections should be used as illustrations only. The children's own compositions will furnish material for analytic treatment, the main function of which is to demonstrate the need of well connected and precise expression.

To recapitulate: at this stage of logical development the child may be expected to discriminate *in a general way*, between subject, predicate, object and modifiers; and also to *recognize* (not define) nouns, pronouns, verbs adjectives, adverbs, and perhaps prepositions and conjunctions. If there should be any hesitation in anyone's mind as to the possibility of *recognizing* parts of speech without defining them, let him be reminded that he knows and recognizes a great many things without being conscious of their definitions, or ever having defined them; and he would often be very slow in recognizing an object from its definition. In thinking of a table, e. g., is Webster's definition of this useful piece of furniture present to his mind, or does he know it at all? Or would the following definition taken from the Standard Dictionary: "A sliding receptacle, as in a cabinet, bureau, table, chest, bench, or the like, for containing clothing, papers, valuables, etc."—help him materially to recognize a common *drawer?* Why should it be otherwise in grammar? Definitions are the climax of cognition—the final label which a logical mind affixes to a concept; but the principal condition of correct conception is correct perception, whether defining words are used as an additional description or not.

If further analysis should be deemed desirable, the construction of sentences may be represented in the following manner:*

Signify principal statements by capital letters, in their natural series, e. g.

"An inventor is rarely a scholar" = A.

"It was a consoling dream; but it was only a dream" = A; B.

Or in case one statement is parenthetically enclosed in another:

"Rarely (for invention presupposes technical skill) is an inventor a scholar" = A (B) A.

Sentences like the following should be allowed to pass as simple sentences (with more than one subject, predicate, or object):

"My sister and her friend met me at the gate; we took a walk and enjoyed ourselves" = A; B.

Only when there can be no mistake about several sentences having been compounded or contracted into one, may the sentence figure assume this form:

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*This method, in its essential features, tho it appears here in a somewhat modified form, has been suggested by J. Wollinger, "Lehrbuch des gesammten Sprachunterrichts."

"The little girl had brown eyes and black hair, and was clever and courageous" = A+B.

In complex sentences, the principal statement is treated as the original simple sentence; the dependent clauses are denoted thus:

(1) Subject clauses = s; abbreviated, = sb:
"Whoever (or He who) finds the book should bring it to me" = s, A.
"To die for one's country is an honor" = sb, A; also in this form: "It is an honor to die for one's country" = A, sb.

(2) Object clauses = o, or ob:
"He says that he never saw anything like it" = A, o.
"The sick desire to be cured" (that they be cured) = A, ob.

(3) Predicate clauses = p:
"He is not what he seems" = A, p.

(4) Attributive clauses = a:
"A friend who remains true in affliction is a great blessing" = A, a, A.

(5) Adverbial clauses = x:
"When spring awakens the flowers, my heart, too, feels a new power rising into existence" = x, A.

If there are any clauses dependent upon clauses, we may consider these as clauses of the second degree, and designate them respectively s^2, o^2, p^2, a^2, x^2. In the same way we may have, in still more complicated constructions, clauses of the third and even of the fourth degree. The following quotation from Webster, analyzed by this method, will illustrate the process:

"(These few and scattered historical notices of important inventions have been introduced only for the purpose of suggesting) = A, xb (that there is much) $=o^2$ (which is both curious and instructive in the history of mechanics:) = a^3 (and) = + (that many things)= o^2 (which to us, in our state of knowledge, seem so obvious) = a^3 (that we would think) = x^4 (they would at once force themselves on men's adoption)$=o^5$ (have, nevertheless, been accomplished slowly, and by painful efforts.)" = o^2.

$$A, xb, o^2, a^3: + o^3, a^3, x^4, o^5, o^2.$$

It will be readily seen that this method of analysis is very different from the ordinary mechanical and barbaric way; it does not dissect, but goes right to the core of sentence composition and touches upon style as well. It has enough of the puzzle quality to arouse the intense interest of the pupils who will delight in exercises of transposition, re-arrangement, and change of expressions, such as the following:

"That it is wise to curb our passions nobody will deny" $= o, sb^2, A$. Make it A, o, sb^2; or A, o.

"Iron is found in almost every country. Nowhere it occurs pure. Most of our tools are made of iron." How can these three statements be combined in one sentence? Or, make it: $A, a + a, A$.

This kind of analysis may even with profit be extended to the literature read, and will serve to make the pupils more appreciative of the peculiar style and manner of an author; but it is well to have it understood by them from the outset, not only that some constructions permit of different interpretations, but also that every sentence cannot be reduced to a formula; that genius defies and transcends mechanism and rule. This work will call forth much ingenuity, if the teacher is wise enough not to present it in the form of tasks, but as literary puzzles and pastime.

Devices like the ones in the foregoing will greatly facilitate the criticisms of the children's own language, especially in compositions, by the instructor. For constant practice in self-expression following the study of great models, will after all be the cardinal method of developing the language of the child. It must never be forgotten that it cannot be the aim of elementary instruction to appeal to the higher logical faculties of the mind, or to teach grammar as such; training of this kind belongs properly to the next higher stage, that of secondary or adolescent education, when the juvenile mind becomes conscious of itself. In the pre-adolescent period all exercise should be directed to the development of the *power of self-expression,* and great caution must be employed lest self-consciousness be awakened prematurely, as that would destroy the child's freedom and naturalness before he has acquired the power to reason out his way for himself and to become independent. The well known anecdote of the centipede will furnish a valuable lesson in this connection.

The term "self-expression", in speaking of the children's compositions, has been used with a purpose. Nothing affords a sadder spectacle than what is ordinarily understood by essay-writing in schools—a painful struggling with foreign, undigested matter, mere word-play, illuminated now and then by borrowed fireworks of other people's brilliancy. It is the very training school of cant. Children should be encouraged to write only of what they have themselves experienced, either in the world of reality or emotionally. They should be led to express *themselves*—their own knowledge, their own thoughts, their own feelings, be they ever so crude and simple; and not second hand thoughts and emotions to make a false show. When once the child knows that nothing but his own self is wanted and appreciated, his language will flow without restraint, and he will grope his way, as it were, thru the intricacies of grammar. Grammar is, to put it in another form, the law that has, unconsciously to themselves, governed the thought of human beings when it sought expression; language is thought materialized. Make, therefore, the child perceive accurately, think clearly, and feel distinctly, and his expression will become accurate, clear and distinct, grammar will take care of itself as it did in the great minds of the race from whose immortal creations we have abstracted those rules of expression which in them were living forces. The language of children is an unmistakable index of their training and education in general, or else of their native genius, but rarely of the amount of grammar they have absorbed.

Special exercises need not be neglected, but they should be concrete rather than formal. If you wish to practice plurals you may have the pupils write statements which are true of *all* flowers after they have studied one; or *all* metals after they have worked with one or the other. And if you think practice in comparing adjectives is desirable, let them *compare real things* with which they are familiar, as in a nature lesson. But avoid it as much as possible—and that can be done even when tables are prepared as described before—to make the exercise smack of formal grammar. It is *POWER* rather than *reflection* for which we must strive. List-making will, as a rule, follow, not precede, these composition exercises.

Minds of an elementary, or of a non-philological stamp, can perhaps never go beyond the limit of what has been so far suggested. Let us not deceive ourselves about the logical capacities of perhaps a majority, at least in this particular line of mental activity. Abstract reasoning is not a quality of the multitude; few will assimilate more than the rudiments of science, few will ever assume a scientific attitude. It would be unjust, however, to brand all unscientific or non-philological minds with the epithet "inferior". Granted there are only too many who will forever remain on a lower plane of intellectuality; but a large number whose scientific, or specificially philological accomplishments can be but elementary, will display superior ability in other lines of human activity. Elsewhere ("The Common School and the New Education," C. W. Bardeen, Syracuse, 1897, p. 7), the writer has suggested a differentiation of school instruction in the prepubertal years; and such differentiation may be carried on and further specialized in adolescent (secondary) education by establishing a series of co-ordinated High School courses which would correspond to the different view-points of individual groups of adolescent students. In a crude way, secondary differentiation has already been instituted, tho with this principal defect that only those pupils who have previously shown themselves philologically and mathematically talented, find admission while all the rest are excluded, may their otherwise superior gifts make them ever so capable of higher training if only the proper course were provided for them.

Grammar, then, in its function as elementary logic, is not a discipline suited for all; but there will always be a certain percentage of pupils in each class that can be taxed higher in exercises employing the logical faculties. To them the opportunity for such practice must not be denied, and while we must not allow ourselves to be worried or disgusted by the hazy notions of the non-abstractive children we may demand close attention and exact work from those that are capable of it. Adjustment to different needs or individualization in class work, must be the watchword.

As indicated in the beginning, the study of foreign languages will prove to be of great assistance in language work. The harder tasks may always be assigned to the so-called brighter pupils (only so-called, as this work which has hitherto been the main criterion of ability forms their specialty) who will be the leaders in analysis, in discovering relations and laws; the others being the followers, the imitators, taking the laws for granted and meekly obeying them as well as they can. But even this latter category will perhaps gain a clearer insight into grammatical facts from studying the completer forms and more intelligible constructions of German and Latin.

The child may fitly be allowed to profit by the experience of the race here as in other respects. It has been shown that in the development of the language of the child, three stages may be distinguished: his first language is the primitive language of the species; the second represents the race language; the third the vernacular (Winfield S. Hall, "The First 500 Days of a Child's Life", Child-Study Monthly, March, 1897). Highly inflected languages are the forerunners of the simpler which more and more discard the "scaffolding of the structure" with the aid of which the human mind created for itself a means of adequate expression (Cf. Edm. Noble, "The Principle of Economy in Evolution", Popular Science Monthly, July, 1897).

To illustrate the point in question, attention may be called to the utter inadequacy of the ordinary definitions of subject and predicate. Swinton's (loc. cit. p. 205) definition is: "The subject names that of which something is thought; the predicate tells what is thought." Metcalf's (loc. cit. p. 15) says: "The part of the sentence which represents the thing of which something is said, is the subject; the part of a sentence which represents what is said of the thing named by the subject, is the predicate." Maxwell's: "The subject,—the word or words denoting that about which something is said; the predicate,—expressing what is said of the thing denoted by the subject." Even a good mind will find it somewhat puzzling to get the sense of these stilted and labored explanations; the majority will certainly fail to recognize subjective and predicative relations in even a simple sentence, from studying these definitions which vainly attempt to give an elementary, yet at the same time highly logical form to a concept which cannot be understood in its abstract fulness by children whose minds are as yet hedged in by a wilderness of concrete objects. But how will anyone succeed in sifting out the grammatical subject and predicate, following the above directions, from the following, not very complex period taken from "Black Beauty": "We saw a light at the hall door and at the upper windows, and as we came up, Mistress ran out saying, 'Are you really safe, my dear?' " etc. Nine out of ten will point out the *light,* or *being safe,* or almost any other word, as the things "about which something is said," rather than the apparently insignificant words, "we" and "Mistress". And what will impress the children to be the "main thought"? Will Swinton's definition help them to recognize the predication?

As has been before suggested in these pages, an appreciation of grammatical relation cannot be developed in children by abstract definitions and formal drill. But let us suppose that the pupils have had plenty of exercises with puzzles as described before, and that close questioning on reading lessons has enabled them to grasp readily the meaning of what they read, and has made them appreciative of the value of concise and coherent expression. Then the component parts of the sentences will stand out to them in clear relief, even without being labeled; and exercises in substituting synonyms and antonyms for the words and phrases used in the text, and in compositions, so as to modify or entirely change the original meaning, will further prepare them for understanding sentence-construction. The substitution exercises will lead up to sentence-building, still preparatory to more formal drill.

The idea of subjectivity will be fitly introduced by a clearer conception of substantivity, at least in a concrete way. To this the reading of German text will help: all nouns, or words used substantively, beginning with capitals in that language. By the assistance of this device, children will soon learn to distinguish nouns from the other parts of speech, even tho they would not be able to give or understand a satisfactory definition. Thru the German and later on thru the Latin, the idea of *case* will come naturally to the child, and frequent exercises (in sentences) will fix the concept of case relation in his mind. Then there will come a time when it will dawn upon the child that while other cases are irregularly represented, there occurs in every sentence some substantive word in the nominative case, to which the rest of the sentence stands in a relation of grammatical dependence. The nominative functions will reveal the idea of subject in distinction from the predication, not vice-versa, as is the course taken by most grammars for schools. In a similar manner, which may be called the method of observation and experiment, the object will be recognized no matter whether it be an accusative, dative, or genitive object. The study of French will be found less helpful in this connection than German and Latin, as it is as caseless as in English.

When the time arrives for crystallizing the young student's grammatical experience relative to the elements of a sentence, in the form of definitions, the following which are here tentatively suggested may be found convenient:

(1) The nominative case in a sentence names that which is the *subject,* i. e. the cause, or agent, *of some action.* It is called the *SUBJECT*. In the sentences expressing a quality, condition, or state, the nominative, or Subject, names that of which the quality, condition, or state, is asserted.

(2) The action performed by the Subject, or the quality or state, which is asserted of the Subject, is called the *Predicate* of the sentence.

The function of *Object,* of activity and passivity, etc., can be deduced from these fundamental definitions without much difficulty.

There is a class of sentences which are not infrequently a source of trouble to a teacher and learner. The author refers to those expressing a quality, etc., or as Maxwell puts it in his "Advanced Lessons in English Grammar", those containing "verbs of incomplete predication" whose "complement is either an adjective modifying the subject, or a noun or pronoun denoting the same person or thing as the subject." The predicate noun, pronoun, or adjective is easily misunderstood by inexperienced students and confused with the object of a transitive verb. It will elucidate the relation of Subject and Predicate in these expressions and throw the functions of the so-called "copula" into stronger relief if we conceive of these sentences as *equations* either actual or apparent, or conditional. Subject and Predicate are then the terms or members of the equation, and the "copula" represents the sign of equatian. Thus:

"The man is a gentleman", means:

The man = a gentleman.

"Anna seems sick" means:

Anna = a sick person (in appearance).

"The soldier lay lifeless but beautiful" means:

The soldier = a lifeless but beautiful form (the verb referring at the same time to his position, and to past time).

In this way the possibility of confusion seems eliminated, and a rational conception of the true significance of the expression made possible. In highly inflected languages the nouns, pronouns, and adjectives of the predication signify the equation character of the expression by agreeing with the subject in gender, number and case.

Instruction in the correct use of English should, for reasons which are apparent from the foregoing statements, be strictly correlated to that of the foreign languages, and not so much by way of parallelism as of sequence, so that they may be mutually helpful, and that each may supply what is wanted in the other. Latin, with its stricter rules and completer forms, requires more concentration than even German does, and while some knowledge of it will prove helpful to all (Cf. the Report of the Committee of Ten on Secondary School Studies, N. E. A.), it will serve as a touchstone of the power of abstract reasoning, and assist the teacher in recognizing those who are capable of special scientific study of a higher order. Its study is fitly introduced towards the close of the pre-pubertal period, or right at, or shortly after pubescence, when the dawn of true reasoning sets in, when the new forces manifest themselves vigorously and give a more pronouncedly individual character to each child.

The framing of definitions of the parts of speech, and formal exercises in etymology and syntax, with which ordinary grammar instruction used to begin, may be legitimately reserved for secondary or even college courses. Thus, the accepted order of grammar teaching may have to be altogether reversed to meet the demands of a better psychological appreciation of the child's mental development.

The writer is not ignorant of the many intelligent attempts which have been made to place language instruction upon a more rational basis. He knows that many teachers are now following progressive lines in this branch, and he has examined many new language books which, in a large measure, recognize the facts and principles here set forth. But most of even the more meritorious ones of these books contain not only too much matter (and some utterly superfluous things, such as pedantic distinction between "statement and questions") but too many, and often ill-expressed definitions. And the order in which the different topics are introduced is rarely even approximately commensurate to the different stages of child development. It may recommend itself to the competent teacher to place no text-book at all into the hands of the pupils, but to adapt the instruction to the varying needs and opportunities.

No attempt is here made to outline a definite course of study on the basis of the principles set forth. What has been here proposed is mainly suggestive, and may have to be revised. Yet, the value of the facts presented will remain unshaken, even if some of the inferences drawn from them may prove to be fallacious; and many of the more practical suggestions have already been tried in actual work and been found helpful.

CHAPTER XIII

Reading and Literature

MUCH criticism has been made in the last few years on the result of the teaching of reading in the schools. It is maintained that the output of our elementary as well as high schools has lost much of that appreciation of good literature in the broad sense which it is claimed was characteristic of their forefathers. Present day pupils know a few classical writers with fair accuracy, but have no knowledge of the field of literature as such, not even English literature, not to speak of the world's masterpieces. Allusions to ancient and modern classics, to Homer, Virgil, Dante, Goethe, Schiller, Thackeray, George Eliot, seem to be completely lost on the child of modern education. And this in spite of the fact that the market is flooded with inexpensive reprints of every "classic" under the sun. The knowledge of the great writers of the past seems to be fast disappearing, according to the views of these critics.

The old Reader, containing bits of literature from many sources, has now in many schools been replaced by a few complete books. The tendency was to have, in lieu of the fragmentary reading of former times, something that is complete. There was much to be commended in this innovation, except that it was overdone. It is not natural with children to make an exhaustive study of a few things. Such an attempt has a stultifying effect. It causes, as it were, mental dyspepsia. Children want to be touched on many points. They can take in a wide range of inspirations and typical suggestions. On the other hand, if they were fed merely on bits, never getting a full well-balanced meal, they would be apt to develop that weakness of mental digestion which would disable them ever to assimilate and enjoy a complete work of literature. The desire for short stories, and the chopped style of newspaper information, so characteristic of this period, may in a measure be due to our having been fed upon the fragmentary and cut-up food served out to us in our younger days from the old time Reader. Both forms of reading material, it seems, should be provided. Practice in rapid reading, instead of constant patient delving into details should be secured. Children need not study like a philologist, or a literary critic.

Another cause for the phenomenon above referred to may be found in the failure of the ordinary reading course to adapt itself to the successive interests of the children. The consequence is that the school reading ceases to mean much to them; it is considered as a tedious task to be done with as speedily as possible. Enjoyment is sought in promiscuous reading out of school, and as their taste has not been cultivated, and their needs have been supremely disregarded by the educational agencies, the children turn to trashy, sensational stuff which burdens their minds with unwholesome notions and enters into their souls like an insidious poison. The Elsie books are but apparently different from the regulation dime novel in this respect. Even the great mass of Sunday school books, and books written expressly for children, are trashy and cater rather to their perverse taste than that they satisfy their real, normal needs.

The cultivation of the children's taste for wholesome reading is as easy or difficult a task as is their habituation to truly nourishing food for their bodies. He who is accustomed to regular nourishing meals such as are adapted to his varying needs in physical development, in health and disease, and who has been given healthful exercise stimulating the natural functions, will rarely feel that craving for an excessive use of sweets, dainties, and spices which is characteristic of the underfed or the overfed, or of those who wallow in sloth and idleness. Likewise, when the child is given the proper mental food, at regular times, alternating with periods and exercises for mental assimilation, enough food and not too much, such as corresponds with the real needs of the child, there will be little danger of his developing morbid desires. A healthy child, properly brought up, enjoys healthy things and has a natural aversion to mental and physical poison. Temporary aberrations need not alarm us as long as we follow carefully the successive fluctuations of the child's evolution.

School reading becomes a hateful burden to the child, even in the early periods of his school career, also because of the interest-killing methods of teaching employed in many schools. It degenerates too often into a mechanical exercise, and the thought is lost for the sake of the letter. This again has two causes: First, reading is begun too early, before the child's organs of perception are ready for it, and before his mind is mature enough to assimilate properly the matter of the reading lessons, so that the process becomes a painful struggle from beginning to end; and second, the study of reading lessons is too formal, laying stress on structure, grammar, parsing, etc., rather than upon the living thought. Reading after all is for gaining the *thought*—not for the taking apart of the dead bones of the language. By dissecting the tissues of a body you will fail to find the soul.

As to the first point: We begin reading too low down in the grades. Attempts have even been made to vitiate the atmosphere of the kindergarten by teaching the babes the art of reading.

We are altogether too impatient to introduce our children to the formal arts. This means a misconception of the meaning of education. Should the fact that there have been advanced so many different methods for the teaching of reading to little children, each of them claiming to be the patent method, and each being effective only within very narrow limits and largely failing to produce satisfactory results anywhere—should not the further fact that it costs such an enormous expenditure of time and energy on the part of teacher and pupils to learn the rudiments of reading in the primary grades, and that the reading of the upper grades rarely loses this rudimentary character—should these facts, among others, not cause us to hesitate and reflect before we decide to continue the practice?

When we remember that the child repeats, in a general way, the successive developmental stages of the race, we may well doubt whether we should base early education upon these formal arts. There have been ages of civilization before reading and writing played any important part in general culture. We may concede that the modern child, being the heir of all previous ages, is born into a modern environment which presents to him a vastly greater opportunity than primitive man had, and that his mind itself is an inheritance of inestimably greater value than his ancestors possessed,—yet we need not draw the conclusion that we should stimulate and hasten his development, his coining and squandering his patrimony, before he reaches the degree of maturity to do that with impunity.

It is certainly wrong to judge popular education mainly by the standard of reading and writing. They are by no means the only means of spiritual culture. It is a pity that the value of oral instruction is so thoroly overlooked in our textbook age when a child is not thought to be learning anything unless he absorbs one of the many methods of primary reading when he is not more than six, and can scrawl his name and a number of empty words on his slate or in his copy book. Justly a reference has been made by thoughtful writers to the fact that the patriarchs of the Bible were illiterate, and that there are now not only primitive tribes, but portions of our own white population, in remote districts of our land, people who have been called "our contemporary ancestors", in the Southern mountains, for instance, whose life is truly patriarchical to this day, "men and women who with deep tho narrow experiences have reflected upon the problems of life, and subjected themselves to its discipline, until they have gained the poise and power of true philosophers." Yet they are practically illiterate. There have been ages of civilization, of even high culture, in the past, created by peoples uninitiated to the arts of reading and writing in the modern sense, and where popular education in these arts was conspicuously absent, where only the most initiated of the priesthood had any knowledge of the kind which we now are inclined to take as a criterion of education even in the youngest school child.

Everyone learns oral language before written language. This is the order of procedure in the racial development. Consequently those brain centers which govern heard and spoken speech, the auditory and motor centers, are earlier developed and better organized than the writing and reading centers which represent a much later development. Reading and writing are but a veneer of civilization as yet.

We may even make an application of this fact to our dealings with the undeveloped races to which our colonizing efforts are reaching out. In an address by the eminent Egyptologist, Dr. Flinders Petrie, on "The Anthropological View of Civilization," the professor said things which have significance not only for modern problems of the "white man's burden", but also for ordinary school education as long as we appreciate children to represent, in their gradual advance thru school classes, successive civilizatory stages. To quote from an editorial on Petrie's article: "'We talk complacently,' says the professor, 'about the mysterious decay of savages before white man.' There is nothing mysterious about it; we change their environment, we subject them to new laws, force them to adopt new habits, give an unwonted direction and exercise to their mental faculties, subject them in a hundred ways to a psychological strain which they are unable to stand, and the result is that they wither just as we should do if we were similarly treated. Of all systems, that which the Anglo-Saxon race seeks to impose upon the weaker peoples with which it comes in contact is the most oppressive. 'Scarcely a single race,' the professor emphatically declares, 'can bear the contact and the burden.' In regard to the Egyptians, he gives his own experience. 'Some of the peasantry are taught to read and write, and the result is that they become fools. I can not say this too plainly: an Egyptian who has had reading and writing thrust upon him is, in every case that I have met with, half-witted, silly, or incapable of taking care of himself. His intellect and his health have been undermined and crippled by the forcing of education.'*

"Is it impossible, then, for the more advanced races to lend any real assistance to the less advanced? It is, if the only idea of assisting them is to Europeanize them; but not, if the more rational idea is adopted of a gradual education along wholly natural lines, with due regard to conditions both present and antecedent. 'Our bigoted belief,' says Prof. Petrie, 'in reading and writing is not in the least justified when we look at the mass of mankind. The exquisite art and noble architecture of Mykenae, the undying song of Homer, the extensive trade of the bronze age, all belonged to people who neither read nor wrote. The great essentials of a valuable character—moderation, justice, sympathy, politeness and consideration, quick observation, shrewdness, ability to plan and prearrange, a keen sense of the uses and properties of things—all these are qualities on which I value my Egyptian friends, and such qualities are what should be evolved by any education worth the name.'"

To the modern adult, reading seems so simple a process that he overlooks the fact that it involves a complex activity of nerves and brain which presupposes a certain maturity of mental adjustment. The combination of thing, name, sound, and symbol into one organized concept is a difficult performance.

Each one of these perceptions has its own center in the brain, and it requires the establishment of strong concepts for each, and of smooth association tracts, to enable a child to have a connected mental image of an object or an action.

In the endeavor to "simplify" the reading in the beginning, the teacher is obliged to introduce at first uninteresting and slowly progressing reading matter to which the child has no natural leaning.

But even tho there were a natural or artificial craving on the part of the children to learn how to read at this early period, or even if their minds were mature enough to grapple with the difficulties of the conceptual process,—their sense organs, their nervous development generally, would offer a most emphatic veto. There are physiological considerations which will cause us to look at these early attempts at reading and writing, as a performance fraught with grave dangers for the healthy development of the child.

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*It may be well to draw a lesson from this statement with regard to the schooling of the colored population of our own South.

The child, as has been stated before, is far-sighted at this age, and if required to concentrate his vision on near and minute objects, is apt to be more or less seriously injured in his power of vision and in his nervous vigor. Reading, writing, and even drawing involve, as has been shown, a high degree of motor specialization, in arms, wrist, hand, finger, and eye adjustment. Even the body posture is an element in this adjustment, and if the child is forced at an early age to assume strained positions for the purpose of those finer specializations of movement as required by reading and writing in books, he may suffer in consequence. It is a notable fact that visual and spinal defects increase in number and percentage in the child's progress from lower to higher grades in school.

It may be interesting to remind the reader in this connection of the instructive investigations of the late Prof. Herman Cohn, of Breslau. He has shown that the range of vision in the open, not only with primitive peoples, but even with modern school children, far surpasses that ever tested within the walls of house or room, and indeed all expectations.

Even with regard to spoken language, the premature teaching of reading, requiring fine adjustments of speech organs, seems at times to have an injurious effect. Attention has been called to the high per cent. of stutterers in the elementary schools, and the great increase of stuttering after the transition from the kindergarten to the lowest primary classes. It is a very significant fact that this increase happens, with boys and girls alike, at a time when instruction in reading aloud is begun, and it may be asked whether there might not be a cause and explanation for this in faulty methods of teaching. Even in enunciating clearly and precisely, altho certain discreet exercises are sure to be helpful, an undue forcing may lead to disaster.

The fact should be emphasized that a child mature enough in mind and body to grapple with the written and printed symbols of words and things, that is, a child of about eight or nine years, will learn to read without much effort and difficulty, and indeed in a comparatively short time. There will have been, up to this period, a great deal of more or less unconscious absorption of literal symbols, and reading will come to him almost without purposive application. Here, as in other branches, he learns by psychological, not by logical methods. In the Third grade, perhaps there may be concentration on the formal side of reading.

The child will apply himself to the conquest of books as soon as he awakens to an understanding of their use and meaning. When he is interested in the subject matter to be gotten out of them, he will learn to read as quickly as did the boy Alfred in the olden times of Anglo-Saxon England. The element of interest is of supreme importance here as in all other studies.

It is true some children are, by the force of their environment, stimulated to a very early development of the faculty of reading. Where there is a book-loving atmosphere in the home, the growing children may breathe it in as they will the natural air in which they thrive. Where reading comes thus natural, and where an inheritance of special culture will strengthen their power of absorption along this line, the harm done may be minimal. Yet, artificial desires are awakened only too often by the hot-house culture some children are subjected to from the time of their birth. The conventional notions of what constitutes education have unfortunately invaded the very nurseries. Or again, there are precocious children whose rate of mental growth is abnormally rapid. The nervous tension of our modern society has produced many such. But in neither case will the further development of the children justify the early overstimulation; few precocious children will fail to evince signs of weakness somewhere at a relatively early period.

In investigating the rational method of teaching reading, let us be reminded of the steps the race has taken in developing graphic and literal symbols for things, sounds, and words. A detailed reference to totems, cord records, and similar methods of recording events and emblematising objects and thoughts, may here be omitted. It is, however, well enough known that writing proper took its origin in picture records, hieroglyphic representations of various kinds. In "La Science Francaise", T. Obalski said this:

"An instinct for imitation leads man to reproduce the forms of surrounding objects, and in the invention of the graphic art he has aimed to materialize his thoughts and give them form and substance; he has wished to supply the place of the absent word, and even to depict it to the eye in the present and in the future. . . .

"It is generally admitted that writing was at first ideographic and solely by means of pictures, as it is yet among certain Indian tribes of North America; it then became phonetic, then syllabic, and finally alphabetic, thus reaching its apogee.

"Certain of the letters of the alphabet themselves have a very pronounced pictorial origin. The first letters of the Greek alphabet, for instance, had once the form of an ox's head, of a house, of a tent, of a camel, of a door, etc.

"In ideographic writing, man limits himself to the representation pure and simple of the beings or objects which he wishes to recall, such as a tree, a brook, a lion. This is ideographism proper or concrete. . . .

"Next we come to pure symbolism, which consists in expressing abstract ideas by figures that will suggest these ideas to others, a bird signifying speed, a fox cunning, etc.

"From this point to phonetic writing there is an immense step to be taken. Here the image or symbol must represent a sound. The 'rebus' is really a transition form between ideographic and phonetic writing. . . ."

On the strength of these facts, would it not commend itself to introduce, with children, the arts of writing and reading also by way of picture writing and picture reading? Picture books have been the delight of children ever since there were children and picture books. A more systematic use might be made of these, so that the ideographic method would lead over to symbolic representation, and from there to phonetic conception. The rebus, being pictorial in character, but at the same time phonetic and introducing letter forms as representations of certain elementary sounds, may still be employed to initiate the children to phonetic appreciation. It is apt to arouse their intense interest, and will thus engage their close attention. It is surer to develop phonetic distinction in the child than if we would begin to harass him by sounding every vocal element of each word with tedious pedantry.

Such work as this need not exclude altogether an early introduction of a selected number of printed or written words, or even phrases, as wholes, serving as cogs to the memory, in connection with the oral and objective work done at this stage. Thus, remembering that this is the "naming period", we may teach the children to recognize the names of things, of the points of the compass, of the heroes and heroines of the stories told and retold, as of Cinderella, Apollon, Baldur, etc. These names will, in the children's memory, be associated with the mental images they have gained of these things and personages, and altho at the beginning more or less hieroglyphic in character, they will form a bridge towards a more abstract conception of symbolic representation. Consisting of alphabetic elements as these words do, they will also initiate the child, without much conscious effort, largely by absorption, to an appreciation of the alphabetic symbols of certain sounds at least.

The first books to be placed in the hands of children, it has been said, should be picture books. But the first printed volumes given them, in the Third grade, for instance, might fitly contain the stories told in the previous grades, quite closely following the oral form in which they were originally presented, so that the child may readily recognize his old friends, and thru them have opened up to him the wide world of book knowledge.

As soon as the printed page is offered to the child, the *hygiene of reading* requires attention. Few schoolbooks meet hygienic requirements. And yet, when we consider what fine muscular adjustments are necessary to enable the child to recognize readily the complex and intricate forms of letters and get snapshots of the words read on his retina, we shall appreciate how important it is, especially with beginners, to make the conditions for reading as normal as possible.

"Type should not be less than 1.5 mm. in height; it should be leaded, and the illumination of the printed page should not be less than 100 candle-meters. Yet most schoolbooks are printed in small type, without leads, on poor or glazed paper, and the illumination in many school rooms is less than two candle-meters. Prof. Catell found the relative legibility of the small letters to be in the following order: d k m q h b p w u l t v z r o f n a x y e i g c s. Thus some of the letters most frequently used are among the most illegible."*

To make the hygienic conditions of reading favorable is the least we must do to enable the child to build up with ease, rapidity, and clearness the composite concept which is the result of the reading process. To analyze briefly the elements of this composite concept, let us be reminded that there must first be the mental image of the *thing itself*—this image is, indeed the first symbol of the real object. Then there is the name of the thing. This again, as a spoken word, produces a *sound image;* as a written or printed word, a *visual image.* Here we have already three mental images which must blend to produce a complete concept. That each of these is in itself composite, in as much as the object no more than its spoken or written name consists of component parts to each of which corresponds a mental counterpart, may be remarked in passing. But each also contains at the same time not only sensory elements, but also *motor* elements. Hearing may be considered a relatively simple sensory process; but in seeing the word on the page or the blackboard, there is a fine muscular adjustment of the visual apparatus, to secure true focusing. This muscular effort leaves a motor trace in the memory. Again the word as heard, calls forth a more or less conscious reproduction by imitation, by means of our vocal organs, even tho this were done "silently", i. e. without the uttering of a sound, the vocal musculature being merely "tuned" to the word; and the motor element of muscular effort in pronouncing the word is also recorded in the brain, alongside with and overlapping the other elements of this composite concept. It should also be remembered that the sound of our own voice, in speaking the word, produces an additional element in this composition. Further, there is the motor activity needed in *writing* the word, which must be superadded to the previous elements. All these memories combine in the production of the complete concept, and may recall each other mutually, so that the sound or the printed form, of the word, may automatically call forth the rest of these memories, including the image of the thing itself, and vice versa. But to make this possible, care must be taken to knit these elements closely together.

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*From a report on "Conditions of Fatigue in Reading," based on investigations by Prof. Catell, of Columbia University, in Child Study Monthly, November, 1896. A complete statement of hygienic requirements in reading, by Prof. Burnham, will be found in the School Jrl. of Dec. 30, 1899, p. 720.

The component parts of such a conceptual colony do not necessarily form a democracy, each having equal right and influence. There are, among men, different types, according to one or the other of these elements prevailing, predominating, and controlling the others. Thus, we distinguish the visual type where a visual image predominates, whereas the others more or less dim and ineffective. In the auditory type, the spoken word recalls most easily all the other component factors. Then we have the motor type when the motor memories prevail; and the indefinite mixed type. Ear-mindedness and eye-mindedness, as the corresponding two types are sometimes called, play an important part in learning to spell. Then again, the curious observation has been made that different persons have quite different mental symbols which are employed by them to represent the whole of these conceptual compositions. Thinking of a tree, e. g., some of us will have rising before the mind's eye the image of a tree itself, usually belonging to the species to which they attached the label "tree" when they first formed this concept, thus showing the effect of their early environment. To others, the word "tree" will conjure up no such objective image, but merely an auditory memory, or image, so that, with them, the symbol of the whole concept comprised therein will be the memory of the spoken word. Others, again, especially those the bulk of whose knowledge comes from books, will have the image of the printed word. In fact, it will be a rare occurrence when all composing elements will be called up at the same time. It is in the nature of the human mind to work thru symbols and formulae, and for each mind to select its own symbol, the one which corresponds most closely to its individual life-conditions.

This tendency to drop the majority of the constituent parts of a concept unless they are absolutely needed for a painstaking identification of the same, and to rely for its rapid recognition upon some reduced symbol, so to speak, is also evident in the process of reading. When we have once mastered the mechanical part of this art, we rarely take the trouble to recognize in detail every letter or even every single word, but allow ourselves to be guided mainly by the thought-suggestions which the words convey. In a report on his preliminary experiments in the Physiology and Psychology of Reading* Edmund B. Huey shows that "sense" reading is faster than nonsense reading, owing to the subexcitations of association tracts, one word suggesting its usual complement. The first part of a word more readily suggests the entire word than the last part. In sense reading, he claims we really do not decipher every word. Says Prof. Jos. Jastrow:*

"There is a mind behind the eye and ear and the finger tips which guides them in gathering information, and gives value and order to the exercise of the senses. This is particularly true of vision, the most intellectual of all the senses, and one in which mere acuteness of the sense-organ counts least and the training in observation counts most. The eagle's eye sees farther, but our eyes tell us much more of what is seen. . . . The importance of the mind's eye in ordinary vision is also well illustrated in cases in which we see or seem to see what is not really present, but what for one cause or another it is natural to suppose is present. A very familiar instance of this process is the constant overlooking of misprints—false letters, transposed letters, and missing letters—unless these happen to be particularly striking. We see only the general physiognomy of the word and the detailed features are supplied from within; in this case it is the expected that happens. Reading is done largely by the mental eye; and entire words obviously suggested by the context, are sometimes read in, when they have been accidently omitted. . . . The mental predisposition . . . . . becomes the dominant factor."

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*Amer. Jrl. of Psych., IX, 4.

*"The Mind's Eye", Pop. Science Monthly, Jan., 1899.

From this the conclusion is justified that even in the teaching of reading there must be an interesting, attention arousing thought which will attract the child and which he will endeavor to cull from the printed page. It is needless to prove that such sentences as "The cat is on the mat," or, "The man has a stick," erroneously nicknamed "stories", do not present to the child an attractive thought.

When, in his eager and impatient search for the thought, the child should occasionally happen to omit certain words, or to substitute others for those in the book, we need not feel unduly disturbed. Let us be satisfied if the child, above all other things, does get the thought. During this process of finding the thought, we should not harass him by pedantic interruptions and corrections. After he has got the sense of the sentence, or selection, we may, by judicious questioning, call his attention to the correct expressions, and in general to the form in which the thought is expressed. It is well, *then,* to cultivate an appreciation of the lucid and pregnant manner in which the author has handled the language as his tool for adequate expression, and to give the pupil practice in the proper use of words and phrases, following the great examples set by masters of style.

But before books can be intelligently used, much oral work should be done, not only that the child may gain maturity of thought and appreciation, so as to read understandingly and with due amount of pleasure from the beginning, but also for the purpose of training his vocal organs judiciously so that they be pliable and ready agents for correct enunciation and pleasing delivery. Oral work in foreign languages will assist the child in exploring and practicing a wide range of sounds; he will then find himself capable of adjusting himself to all requirements of well-modulated, clear and agreeable reading. Singing is also a great help in training the vocal organs, including a proper use of lungs and chest. "In the correction of errors in language," suggests Prof. Lukens, "the ear can be more easily trained than the eye to recognize and use correct forms. Children appreciate and take delight in matters of euphony. Pretty sounds are enjoyed, and if matters of this kind receive their due place early in life, they will later widen out to beauty of style. The ear is the organ of the emotions more than any other sense, and there is much less danger from too great use of the ear in early school work than of the eye."

But in all these efforts we must take care to form the child's taste by giving him real literature from the beginning. The oral work may be done by telling, or reading, stories, poetic selections, etc., to the children; these the pupils may reproduce, and in part commit to memory. There is too little of this telling and memorizing of good selections done nowadays. Let us carefully select gems of poetry, interesting to children, even tho their language may remain partly mysterious to them; proverbs and sayings, such in which the wisdom of ages is crystallized. Stories, myths, and fairy-tales will be largely suggested by the other work of the school, as frequently indicated in these chapters. But let us understand that all these selections must represent eternal motives, not merely silly fancies; that they must be typical in form and content, so as to have an imperishable value for the children's mental and moral development. We should give only what is best and lasting, the perennial creations of the human mind, those that symbolize eternal truths in the life of nature and of man. Bar out the silly trash written up by the penny-a-liner children's books manufacturer.

The old myths can be told over in a modernized form, if you please, such as President David Starr Jordan has attempted in his charming "Book of Knight and Barbara"

(New York, Appleton), without fear that the true spirit would be lost. Let us remember that, after all, our children are modern children, living in a modern environment, and that they have no apperceptive basis for ancient conditions. To adapt the ancient myths to modern conceptions is therefore perfectly legitimate; it is the eternal, typical *thought* for which we care most, surely at this stage more than for ethnographic information. Our own fairy-tales, what else are they but mediaeval adaptations of ancient mythological elements? No fear need to be entertained that such treatment will spoil the children's future enjoyment of the classic form, provided they are introduced to the latter at the proper stage of their development and in a spirited way.

This oral work should be continued thru the reading period, supplementing the book work; and similar selection should characterize the reading material. Have them read only what is *worth reading*. There is a wealth of good literature to draw from. There is no excuse for restricting the children to a few made-up books when they should read as much as they can assimilate.

Reading has two objects: to mediate information, and to give inspiration. Information represents the knowledge-element; inspiration is drawn from the ethical ideals which lofty poetry and literature is destined to arouse in our souls. But no sharp line can be drawn between the two. Even information, if of the right kind, and presented in the right form, will give inspiration: inspiration towards mental effort, self-culture, and self-perfection, and towards following the lead of the masters of thought, of knowledge, of action. To secure this effect we should place in the hands of the young only the best books, even on the side of mere information. The master of a science is usually best able to express its message. At any rate, supplementary literature reading should accompany all other work. Read Bancroft and Mommsen and Hawthorne and Ebers for history; read the best poetry illustrative of historical events and geographical facts; read Ruskin to accompany your art work; read Kipling's "The Ship that Found Herself", or his "007", to learn how even brute machinery, the product of man's most ingenious conquest of nature, can be endowed with a living soul.

Children, furthermore, must be taught not only *what* to read, but also *how* to read, so that they would get the full benefit of their reading, and learn to get the fullness of thought out of the books, and also enjoy the beauty of form. Their home-reading should be controlled as much as we can do that, by supplementing the school work thru the help of a school library, making use of current magazines, and connecting the school systematically with the public library. Children must learn how best to look up references, and to find instructive and interesting material anywhere, or at least wholesome enjoyment. They might be invited to report at school on some, or even all, of this supplementary reading, for the benefit of their classmates, and for the purpose of enabling them to become fully conscious of what they have read; yet, while aiming at some systematic form of doing so, avoid becoming pedantic. We must keep alive in our pupils, as much as feasible, the sense of freedom of choice, and we must respect to some degree their privacy of enjoyment. All this, however, requires careful, methodical procedure, so as to avoid waste of time and energy.

In selecting and grading material, we shall have to follow the successive interests of the child as being indicative of natural periods of development. The culture epoch theory as it has been set forth in previous chapters will be our guide in this respect.

Then there are two special adjustments to be made. The first is in regard to the periods of the reading interest. There are, as has been shown before, maximum and minimum periods of this interest. Thus, while at the proper stages we may concentrate on reading, in school and supplementary, at others there should be a letting off, and concentration on other work, objective and manual.

The second adjustment is one to individual conditions and needs. Each one can be reached best thru his supreme interest; and if care is taken that in class work there be an exchange of individual experiences, by reports and discussions under proper guidance, there will be no narrowing down to individual idiosyncrasies, no danger of the pupils becoming one-sided and unredeemable, but a community of interests will be established, and mutual appreciation and respect secured. Individualization as to special interests includes, of course, a proper regard for the different interests of the two sexes, at the successive stages of sexual differentiation.

The main purpose of the study of literature, as Dr. Wm. T. Harris once put it, is that it affords "vicarious experience". The author will close this chapter with a quotation from the essay in which this helpful view is set forth:

"The greatest poets are Homer, Dante, Shakespeare, and Goethe, and these artists are in the truest sense educators of mankind. The types of character exhibited in their literary works of art, Achilles, Agamemnon, Ulysses, Macbeth, Hamlet, Wilhelm Meister, and Faust have helped and will always help all mankind to self-knowledge by showing them how feelings become convictions, and how convictions become deeds, and how deeds react upon the doer thru the great organisms of human society. The world-wisdom of a people is largely derived from its national poets not as a moral philosophy but as vicarious experience. Aristotle said that the drama purifies the spectator by showing him how his feelings and convictions will result when carried out. Without making the experiment himself, he profits by participating in the world of experience depicted for him by the poet."

CHAPTER XIV

Oral and Written Composition

IN order to ascertain what part composition is to play in education, and by what means we may accomplish the best results, we must first be clear in our minds as to what is the real purpose of composition. In most schools it is mainly subservient to grammatical drill; sentence building and even essay-writing are utilized for the formal practice in the application of certain grammatical rules and usages, or of rhetorical prescriptions. The author has never been able to reconcile himself to the use of the term "composition" as applied to the teaching of Latin and Greek syntax in our schools, signifying as it does here a putting together of detached language bits into certain grammatical relations without particular reference to the development of a thought content. Such exercises are indeed valuable and necessary, altho in lower grades they are often overdone; when the child's mind has reached a certain degree of maturity, when it has become capable of abstraction and reflection, work of this nature will prove itself very helpful if judiciously employed. But it is composition as little as would be exercises in putting chords together to form a musical sequence and harmony, according to the rules of the grammar of music; or exercises in light and shade and outline and washes and bits from nature, in drawing and painting. To deserve the name "composition", a melody, or a picture, must be more than a mere technical exercise. Likewise a composition in language. Composition refers to composing, not of technical forms, but of thoughts as expressed thru form, and is in its very nature an *art*. "There is", says Disraeli, "an art of reading, as well as an art of thinking, and an art of writing." It has reference to a re-arrangement of the impressions we have received from the outside world, into some organic whole which corresponds to our individual mental attitude towards these impressions. There must first be such an individual attitude —the impressions must have been worked over so as to be mental possessions, to become our own inner world, or world-view, world-conception. He who cannot thus assimilate his impressions, who cannot first of all compose them *within* himself to form organized groups in his mind, will never be able to make more than a bungling attempt at composition, in speaking or writing, however well he may master the technical rules.

Orderly thinking is the prerequisite for orderly speaking and orderly writing. A training in the art of receiving impressions, in the art of perceiving, conceiving, thinking, must, then, precede the training in composition. Composition signifies the expression of our inner self. When we have succeeded, as educators, in doing our share towards enabling the child to set himself right with the world about him, to find his mental bearings, to develop an individual attitude,—then the expression of this attitude will be found to be a relatively simple process.

"Is it not true," asks John Burroughs, "that in literature proper, our interest is always in the writer himself,—his quality, his personality, his point of view? We may fancy that we care only for the subject matter, but the born writer makes any subject interesting to us by his treatment of it or by the personal element he infuses into it. . . . This intimate personal quality is no doubt one of the secrets of what is called style, perhaps the most important one. . . ."

We must then, above all other things, work for the thought and feeling which may then strive for expression, and which will prompt the child to seek for the most adequate, precise, and suggestive *form* of expression. Form has value only as a means to an end. Beauty has no independent existence. "Function," says Walter J. Kenyon, "is the basis of all art. . . . The sure way to miss beauty is to try to create without a core of principle; to invent style for style's sake instead of for the truth's sake." And again: "All spontaneous expression, be it under skilled guidance, will make ultimately for beauty. No other expression is educative. . . . Wherever a creation is the expression of an eager soul, undriven save by native impulse, it makes towards art, whether it is decorative or not, and whether it be sightly to the enlightened or not. Art is saying to your brother what God says to you. The vehicle of expression does not signify."

Thus, when there are in the child's soul real experiences, thoughts, feelings, aspirations, we shall have the basis of expression thru genuine composition. If we, to the child, secure the opportunity for spontaneous expression, he will reveal himself to us. Essay writing, when intelligently conducted, will prove a very valuable help in the study of individual children. Thru their expression, we shall learn to understand what their impressions have been, as well as their characteristic attitude, their nature and longings.

There is another side to this which is shown by Prof. Wm. James in these words:*

"No reception without reaction, no impression without correlative expression,—this is the great maxim which the teacher ought never to forget. An impression which simply flows in at the pupil's eyes or ears, and in no way modifies the active life, is an impression gone to waste. It is physiologically incomplete. It leaves no fruits behind it in the way of capacity acquired. Even as mere impression it fails to produce its proper effect upon the memory; for, to remain fully amongst the acquisitions of this latter faculty, it must be wrought into the whole cycle of our operations. Its motor consequences are what clinch it. . . . No impression without expression, then—. . . The expression itself comes back to us, . . . in the form of a still further impression, namely, of what we have done. We thus receive sensible news of our behavior and its results. We hear the words we have spoken, feel our own blow as we give it, or read the success or failure of our reactions in the bystander's eyes. Now, this return wave of impression pertains to the completeness of the whole existence."

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*"Talks to Teachers on Psychology."

Attempts at expression, it will be seen, are a means to clarify our own thoughts and feelings. Everyone of us will have experienced this. As soon as we endeavor to communicate what is in our soul to others, we realize many an indistinctness of idea and incompleteness of argument. By putting our thoughts into words, we *develop* them and make them more definite. Of course, in mature life we always think in words; but unless we endeavor to formulate our thoughts in communicable form, these words will be relatively indistinct, as much so as the thought itself. There is, then, a reaction of our attempts at expression upon our own inner self which *grows thru expression*. The value of an exchange of opinions, of discussions, does not only lie in our gaining new light on the subject from the view-points of our opponents, but in our being obliged to define our own position more exactly and to adjust it to opposing argument. This is perhaps the reason why quite generally we come out of such discussions with our own opinions considerably confirmed and "stubbornized". Again, by putting our emotions into clear-cut words, we shall often succeed in emerging from harassing agitation of heart, harassing because vague and full of intoxicating, or torturing, imageries and indistinct visions, and thus we are enabled to rise above them and master them. This was the way in which one of the world's master-minds, Goethe, liberated himself from his ephemeral passions. (Cf. "Werthers Leiden.")

Let us not forget that of a vast number of the ideas and impressions dwelling in our minds we must confess that they are characterized by vagueness and lack of outline. Were it not so, there would be less nonsense, wavering, and irrational fancy at large. Only as far as we can express our ideas adequately, will they assume a certain degree of rational distinction and fertility—motive power for rational action. Expression in words is almost like a mathematical test. What remains unuttered and vague cannot be reasoned about; only what is expressed can become a matter of argument. It is therefore plain enough why it is that the masters of expression have ever been the leaders of thought, and vice versa.

Unquestionably, definite thought depends largely upon definite impressions—concrete experiences well digested. There is a physical, or sense, basis to all thinking. "The Spartan children," as Edward M. Plummer* shows, "were superior to the other Greek children in the power of expression, altho they were not so highly educated. This is no doubt due to the fact that at a very early age the Spartan children were forced into a free life in the open air and to systematic gymnastic exercise."

Before we can expect, then, much power of expression we must provide ample opportunities for wholesome experience and natural conditions of growth.

However, without proper exercise, the faculty of adequate expression will never be fully developed. We learn to swim by swimming, as the old adage has it. We learn to talk by talking; we learn to write by writing. Afford, then, the children abundant opportunity, in connection with all other school work, to express themselves in oral and written form. Encourage them to say and write out what they know, feel, hope, aspire. In this age of formal book drill, the child has little such chance. He is weighed down by the formulas, rules, and technical exercises which are, to a young child, principally a tax to the memory without appealing to interest and imagination. The effect is deplorable enough: few of our elementary school pupils attain to a satisfactory fluency in expression, and even the poor results in spelling of which the so-called modern school is accused are largely due to the fact that our children have too little chance for *using* the words in compositions of their own. Mechanical spelling exercises are a miserable surrogate for free application of the proper terms for self-expression.

There is need of caution, however. What is true in regard to other potential activities of the child, is also true of his expression. We must carefully avoid forcing it before its time. Expression, like every other faculty, is a growth, and premature stimulation will either produce nervous strain or empty babbling. In either case, the natural growths will be arrested or perverted. First of all, children must take in a wealth of impressions. They cannot readily convert these into communicable form. The young child is mainly *receptive,* and quite fragmentary and stumbling in expression. He cannot say all he knows or feels, or say it in a form which would correspond to an adult standard. His thoughts, and his sentences, lack perspective as conspicuously as do his drawings, and he records things quite out of natural proportion and relation.

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*"Toys and Games for Children among the Ancient Hellenes," Amer. Phys. Educ. Rev., Sept., 1898.

We may forgive children their stammering way of expression the more readily, the more clearly we recognize the often insurmountable difficulties which even adults undergo in trying to give utterance to their thoughts. Our deepest feelings, notably those of a religious character, are really incommunicable, because more or less formless, not for the reason that they are *below* the level of rational definition, but that they are *above* it,—transcendent, metaphysical. In speaking of them, we are forced to employ conventional symbols which are quite ambiguous, and mean different things to different people. Thus, the terms "God," "Nature," "destiny," "immortality," etc., will forever remain indefinite, and therefore, unfortunately, a source of contentions among fanaticists.

The reader is referred back to what has been said in the foregoing chapter on oral work to precede work in reading and writing. We may well style this period in the child's development as *the oral age.* Likewise, as in reading, oral work should precede written work in composition. It is interesting to note how even adults, especially those who have comparatively little practice in writing, have a certain horror of the blank page which they are supposed to fill with expressions of their own mind; how even practiced poetasters will often rack their imagination to find the first word or line with which to break the horrid white monotony of the empty sheet of paper. This horror of the blank page is quite pronounced in the case of the child who is bidden to write a composition. But if he has gained practise in oral expression and learns that a written composition is nothing but a putting down in record-form of what he has previously expressed by word of mouth, this horror will be minimized. The child may be asked to reproduce the stories he was told, by telling them back to the teacher, or to the class; judicious questions will elicit from him statements as to his experiences, at home, in the street, in school, in manual work, etc. Thus the child may be led to express himself freely, and connectedly, on what he has done, seen, heard, enjoyed, etc.

Details may be gathered up, the making of successive statements should be constantly encouraged, and gradually, the idea of the relation of one to the other statement can be developed. At first, all statements seem co-ordinate: the child strings them up, using invariably the conjunction "and". Then comes a realization of the subordinate elements, and other conjunctions, relative phrases, and the like are slowly introduced. But this is a laborious process. Much practice must be given in this direction, and much patience and caution needs to be exercised.

A helpful practice is dictation by the children to the teacher. The teacher will then read aloud what the children have dictated, inviting amendments. This will arouse the children's desire to read their own statements. By putting these on the blackboard, or manifolding them on the typewriter, such opportunity can be provided; this will be found a simple way of encouraging and simplifying exercises in reading. The children will of course more easily recognize their own sentences than they would foreign matter. Reading should precede writing; there is absolutely no need of enforcing a copying of these statements by the children, or any writing exercises whatsoever, at this stage; indeed, writing may for some time continue to be hieroglyphic, even after reading has already commenced to appreciate alphabetical elements.

In the gradual transition to genuine written work, letters will probably commend themselves as the first form of this, as they are in the nature of a personal effusion, containing personal elements in author and addressee. In fact, letters, communications, offer the first incentive to writing.

It is essential that clear oral and written statements accompany all work in school. "Kein Tag ohne eine Zeile!" (no day without a line) was the suggestive maxim of an old

German teacher.

It does, however, not impress me as imperative to insist pedantically on complete sentences in every instance, especially not when such statement would be merely a repetition of the teacher's question in affirmative or negative form. Yet constant insistence upon good language is absolutely necessary. In doing this, be gentle and suggestive rather than nagging and pedantic. Some apparently incorrect expressions used by children, even certain slang forms, altho they appear antagonistic to adult refinement, have peculiar force. And it is not well to substitute forever conventional phraseology for the spontaneous ebullitions of childhood, crude and uncouth as they may seem. Primitive thought needs a primitive dress. An Indian in a stovepipe is an absurdity.

Rather than to discourage the children by too much criticism, set the good example in your own speech, for more or less unconscious absorption by the pupils. Teachers are in this respect, unfortunately, not above reproach, by any means. Mr. Percival Chubb is authority for the fact that many of the teachers in New York City use bad English habitually.

With discreet guidance, children will grow in mastery of language. No doubt there are drawbacks. The home and street environment of the child may quickly destroy what the teacher has builded with patient toil. Little can be done in this respect, and the teacher must be satisfied with the self-effacing consciousness of having done his best—unless he gain an influence over home and community by co-ordinating all educational factors in a harmonious way.

At any rate, he may console himself with the reflection that after all it is the thought, and not the form, which is the principal thing. Work for the thought, and accept individual forms of expression be they ever so unconventional. Even tho germanisms and slang forms and idiomatic crudities may abound: as long as there is evidence of some careful, rational thinking and organized argument, let it pass without struggling against the inevitable. And even where the home and street conditions are most favorable, we shall have to accept many a deviation from conventional modes, and shall have to exercise discretion in correcting the children's speech.

Patience there must be above all things; and by being encouraged in good reading the children will gradually learn to use passably good form. Says Samuel Thurber:

"It is of no use to correct young children's work in detail. Why should not the boy or girl be allowed to write in the boyish or girlish way, as well as to speak in the boyish or girlish voice, or to move, to sing, to dance, in the boyish or girlish way? The pedant corrects young compositions into mature molds—a ridiculous and useless labor. You will distinguish between things positive, like spelling, which are distinctly right or wrong, and things relative and elastic, like the choice of words and phrases, which are good or bad according to season and place. . . . By correcting too much you may easily check spontaneity."

And Prof. Earl Barnes comments as follows on a little girl's letter:

"The girl is letting her soul shine out. If she knew that she should find in her mother a critic of spelling, punctuation, and grammar, she could not write in this way. . . . The arts of expression are mastered only by expressing, and in each of them one must pass thru a period of blundering before he comes out into the field of perfect mastery. . . . The pedagog can help most by providing incentive and then by keeping out of the way. His aid must come, here a little and there a little—but never so as to attract attention from the doing to the form. . . . We spend our days teaching a child how to write "rite" right, and thereby destroy his ability to grow by going out thru expression."

In order to train the children in doing justice to tasks in composition, they must be given exercises in *finding,* and in *arranging,* the material. Finding the material is easy enough for him who knows how to use reference books, indexes, lists, and bibliographies; who has learnt to skim over many pages and select what is helpful and essential; who is master over his own stock of stored up knowledge, and who has trained himself to find on short notice in the storehouse of his own mind the impressions and thoughts needful for a present discussion. He who is orderly in his mental possessions, will be ready at any time to lay his grasp on the wanted material.

But the child has to slowly acquire these habits and to develop these faculities, and it is our office as teachers of composition to assist him in this habituation and training.

Arranging the material is practically identical with finding it; for unless there is a well-conceived logical order of the subject in hand, in our mind, we shall never succeed in discovering suitable material; or perhaps it is more correct to say, finding and arranging are mutually subservient,—the one process helps the other. Of little children whose experience is fragmentary and whose thinking is incoherent and unrelated, we cannot expect a proper arrangement of argument. The faculty of arranging thoughts in a rational sequence will grow with increasing maturity. We may help this development by tabulating in an orderly manner our daily lessons so that the children will get into the habit of storing up their knowledge in organized groups.

To secure unity and continuity in composition, let us remember, and impress it upon our pupils, that an essay, or book, must express virtually *one thought,* not a promiscuous bundle of thoughts. This one thought may be subdivided, or made to rest on a host of subordinated thoughts; but the aim must always be to elucidate the one main idea. A composition should express *one* idea, as does an architectural creation, or a painting, or a drama; and unless this is brought out in clear shape, the composition is a failure. The main thought must never be lost in a jungle and wilderness of accessory ideas. Of a composition, much more truly than of a mere sentence, can it be said that it expresses a complete thought. It is always in the nature of a logical syllogism: there must be premises and a conclusion. There must be a fitting introduction, a body of substantial argument, well articulated and organized, and the inference from all the foregoing must crown the effort.

It is beneficial to accompany these exercises with a study of examples of good arrangement and style, from literature. Even mere reproductions from memory are helpful, as they will illustrate, and clinch, the idea of sequence of thought. Reports on books read, in school or at home, following chapter after chapter; and reports on supplementary information to assist in school work, all these will contribute to the same end, viz., the appreciation of proper sequence, and the training in suitable, logical arrangement of the subject matter.

The study of proper forms of expression will be enhanced by experiments in altering expressions in masterpieces of style, to discover whether they may be improved upon, and if not, as will be found to be the case in the great majority of instances—why not. The study of good literature generally will have a purifying effect upon juvenile style. But let us present to our pupils specimens of different styles rather than dwell too long on a few selected authors lest they conform their mode of expression too slavishly and conventionally to some one of these, accepting and imitating his mannerisms no less than his elegancies, and sacrificing their own individuality.

The selection of *themes* ought to present no difficulties. The daily experience of the pupils offers boundless opportunity for work in composition. Only let us be careful not to overreach the children's ability. Even high school topics are often too old, requiring more mature thought and more comprehensive experience than adolescent boys and girls can possibly command.

The subjects of compositions, in the same way as the form of treatment, must be allowed to accord with the successive interests of the children. The culture epochs are dominant in this branch as they are in reading, and practically in all branches of school instruction. This regard for the native developmental interests of the children will also prevent us from forcing absolutely the same subject upon all children, and will induce us to provide for individual selection. Not every pupil will approach a subject with the same degree of eagerness and native talent. And altho it would be proper to give from time to time such class exercises as will afford needful training to all alike, we should strive to secure class results by the co-operation of the individuals composing the class, each working within his own sphere, and exchanging results with all others, much rather than by forcing all into the same narrow groove.

Of composition exercises, there are two kinds.

First, STATEMENTS OF FACTS. Here, the power of observation, and of giving an account of what has been observed, comes into play. To require such statements, involves a training of the judgment.

"For training of the judgment, it is of course necessary that the perceptions be first educated. . . . Judgment consists essentially in comparison, and it is consequently by comparison that we must train this faculty. . . . The training of the judgment must naturally begin by a comparison of objects with which the child is familiar, and in which he takes some interest. In fact, the more they interest him, the more profitable the lessons will be. After some experience with familiar objects, unfamiliar or abstract ones may be taken, their difficulty increasing by regular gradations until we come to such complex cases as the relative goodness or badness of some supposed action. By such steps it will be found an easy matter to give almost any child a sound judgment."*

Statements of facts may be demanded in connection with the concrete experiences of the child—his home and school life—observations in reference to science and geography—experiments—studies in history—manual and art work, etc. To this class belong also those clear-cut lines of argument which are based on facts, and are deductions from facts. These statements exclude largely the personal element, at least in a measure, and a certain degree of objectivity of view can be insisted upon. Yet, in all combinations of facts, the creative and imaginative faculities come into play. Even in mere statements, the personal equation cannot be altogether excluded, as all facts have first to become internalized, subjectified, before they can become possessions of our mind.

In matters of conclusions and demonstrations, the personal equation often becomes decisive. What may be true and convincing to me, need not be so to you. This is a matter of individual constitution and attitude. We must respect the same in our children.

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*Clement Fezandie, "Mental Education," School Jrl., Oct. 6, 1894.

Thus we have, as the second class:

CREATIVE AND IMAGINATIVE WORK in composition. The psychological basis for this is elucidated in the following extract from the proceedings of the Illinois Society for Child Study, 1899, ("Imagination and Education"):

"It is not simply the *image*-ination involved in perception and memory, but it is most solidly based upon this. Indeed, at first the images are brought into consciousness as memories of what has been experienced thru the action of the senses. Repeated reproductions of this kind, with little emphasis upon the time and place in which the original sense-experiences were gained, tend to free these memory images from their connection with real material—to give them a purely ideal existence, and thus prepare them for new combinations. Thereupon, interest transforms these released images into novel and hitherto unexperienced products. Some of these products are images of actual material existence. Others have an ideal existence only. Such images as these, the results of this dissociative and recombining process carried on without any unusual or phenomenal emotional activity, constitute a very large part of the 'mind-stuff' of the ordinary mortal. These images, to an inconceivably greater degree than the pure memory images in which they had their origin, constitute the 'stock in trade' in the fundamental part of all educative effort."

The final outgrowth of this kind of work would be genuine *fancy,* which, when normally developed, wholesome, and in accord with the natural instincts of the race, produces *poetic conceptions;* but when morbid or abnormal in some way, will degenerate into *fallacies, delusions,* and insanity. Here, discreet guidance is most needed.

We should, however, recognize that, by younger children, fact and fancy are yet undistinguished. They live in a world little explored by experience, and largely imaginary. They are apt to project their own personality unhesitatingly into the objects around them. They play with imaginary companions as readily as with wooden dolls which they endow with the semblance of life. In his very instructive study on the early sense of self, President Stanley Hall* gives these valuable hints:

"The dramatic passion is almost universal with children. They personate all kinds of people, and imitate even defects. . . . It seems as if children sometimes hate to have or be a self; felt that personality was not essence but phenomenon, and before they attain the virtue of unfolding what is peculiar to self, strove to develop what is common to all the species; feel reluctance to be merely a specimen of a type, and experience a touch of the sublime indifference of nature and of philosophy. . . . In their plays children even become a post, street-lamp, rock, chair, mirror, table, tree, etc. . . A girl of six passionately felt that she could and would not be herself; because it was too dreadful. . . . Girls frequently wish to be boys, and often expect to be when they grow older, or fear they may become boys. Others fear at night that they will wake up someone else in the morning. . . . These phenomena are hard to interpret, but suggest that childhood is generic and full of promise and potency of many kinds of personality and consciousness before the shades of the prison-house close in upon it. . . . (There is) a longing for the broadest possible basis of experience and to touch life at every possible point, even if it be vicariously."

This longing, and the capacity for vicarious experience should be made use of in composition work. And, with the proper direction on the part of the teacher, it will serve to strengthen the child's consciousness of self, to widen his horizon, to direct his gaze upon the ideal, to broaden his selfish instincts to embrace the destiny of the race.

Composition is a means of self-expression, no doubt. But in every attempt at doing this, the child will become more conscious of his limitations the older he grows, and the less fancy supplies what his own circumscribed experience and personality cannot. Composition, therefore, is also a means of self-knowledge and self-control. It teaches the child how vast is the material from which he may draw; how small an amount thereof he can make serviceable to himself; how imperative is proper care in selection, and how insignificant and needful of adjustment is his own individual opinion. He will, at least may or ought to, realize that not every problem which he undertakes to grapple with, is capable of ready solution thru his individual effort, and that he must be satisfied with an honest searching after truth, and with contributing his mite towards making a later solution approachable—that all he may do is to establish more clearly in his own mind the principles, logical and ethical, upon which all rational maturity rests, and become more and more conscious of true composition being a difficult art—one of the many ways by which a thought, an idea, an ideal, can be crystalized, and for which each individual has a different aptitude. "The conscious utterance of thought by speech or action, to any end, is art," says Emerson. And Holland has this thought in his essay on "Art and Life": "The temple of art is built of words. Painting and sculpture and music are but the blazen of its windows borrowing all ther significance from the light, and suggestive only of the temple's uses."

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*Amer. Jrl. of Psych., IX, 3.

The closing words for this chapter may be quoted from Bulwer Lytton: "Art in fact is the effort of man to express the ideas which Nature suggests to him of a power above Nature, whether that power be within the recesses of his own being, or in the Great First Cause of which Nature, like himself, is but the effect."

The true artist, however, is the most humble of men.

CHAPTER XV

Grading and Promotion

THE traditional grades, with their system of promotions according to stereotyped rules, are inconsistent with the natural development of the child. This has been very strongly urged long ago by Prof. W. S. Jackson, in his article, "The School Grade a Fiction." Said he, among other things:

"It is evident that the fundamental thing in the conception of a school grade, as at present recognized, is an arbitrary unit of time. . . .

"So far, all attempts made to prepare a course of study close fitting to each grade have ended in disappointment. . . .

"It is certainly open to question whether skill should be taken into serious account at all in establishing grades. Skill is a variable quantity with the same pupil in different subjects."

The evils of the present system have long been recognized by observing teachers, but it has been found signally difficult to solve the problem of how to re-adjust matters. In mass-instruction, there is need of some system of grouping the pupils; and as there is everywhere a tendency to be economical as to the number of teachers employed, the breaking up of the mass into small groups has been found inconvenient. The greatest obstacle, however, has always been the routine standard of proficiency forced upon the pupils, and the unelastic character of the courses of instruction.

Many attempts have been made to individualize and to promote within the grades. The grades have been subdivided into divisions, two or three in a grade. This works well in a certain way, but means an additional burden to the teacher who has so many more recitations to hear. "Our children", says Julia Richman, "are so accustomed to giving close attention to the teacher that, when separated into groups, their minds invariably wander from their own tasks to listen to the instruction given to some other group." Then again, complete systems have been devised to give the "brighter" pupils the chance of advancing more rapidly than the slower ones. President Elliot, of Harvard, and Superintendent Shearer, of Elizabeth, N. J., have developed and introduced plans of this kind.

Miss Julia Richman describes what she calls a "successful experiment in promoting pupils," as made in Public School No. 77, New York. She placed the brighter pupils of one grade in a room by themselves, and the poorer ones also. Where there were enough pupils in one grade to warrant the establishment of more than two separate grade rooms, she divided them accordingly. Individual attention, advancement, and promotion, were thus secured. The objection that a plan like this were possible only in a large school is not very valid. There might be consolidations made of several grades from neighboring schools; and then, by stretching the idea of "grade", it would be feasible to put the "bright" pupils of two or more grades into one group by themselves and to adjust the course of study accordingly, expecting that they would cover the ground in less time, while the slower ones would be given proportionately more time. All this can be accomplished in some way, as long as the purpose of the school is considered to be mainly the imparting of *knowledge*, the giving of information. Some, the so-called brighter pupils, will absorb this more quickly than others. The mere information school will permit of plans like this: Out of a class of 228 pupils completing eighth grade work in Seattle on the once famous "Shearer plan" i. e., promoting any day when the pupil is fitted, thirty-one did it in six years, seventy-eight in seven years, seventy in eight years, nineteen in nine years, eight in ten years, and two in eleven years.*

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*Quoted in Child Study Monthly, Sept., 1898.

There are, however, serious objections to this plan. The practice of allowing the "bright" ones to proceed at breakneck speed, may do them more injury than good. Our ordinary school education is hot-bed culture at best, a driving of children along the path of adult-invented systems and standards into nervous collapse and depletion. Surely, we may succeed in stuffing some of our pupils with facts and rules and definitions and names and dates at an increasingly higher rate of speed, and in graduating them a year or two earlier, so that we shall finally promote to our high schools children who have hardly entered their teens, and on to college boys in knee-pants, and girls in short skirts and long braids. But that would be a generation of neurotics, of precocious imbeciles and blasé fools,—such ones as are sometimes introduced to the readers of funny papers as "genuine Bostonians" who play with the differential calculus at an age when normal children play with dolls and building blocks.

What sort of children do we call "bright", after all? "Bright" is an ambiguous term. It may mean a retentive memory which absorbs quickly like a sponge and may as easily be squeezed empty. Or it may be applied to the ready talker who can make much ado about nothing and dazzle us with the eloquence of empty phrases. Or "bright" may be taken to be synonomous with "quick" referring to the shorter reaction time of such individuals. It is a well known fact in physics that some liquids boil at a lower temperature than others. Likewise, some individuals respond more quickly to excitations than others. But the term "bright" is surely not in every case identical with "mature." And is not maturity the thing we strive for?

Under the caption, "Speed as an Element of Weakness," Dr. M. W. Van Denburg has contributed an investigation, which he introduces by the scriptural quotation, "The race is not always to the swift, nor the battle to the strong; . . . nor yet favor to men of skill; but time and chance happeneth to them all." Among other things, he says this in the course of his argument:

"If Charles Darwin were a pupil in one of our public schools to-day, the chances are nine out of ten, that he would be set down as a very commonplace, dull boy. His mind always moved slowly and with extreme caution from his earliest school days. This was his individual constitution.

"If John Stuart Mill and Herbert Spencer were two boys in the same grade, Mill, who would be several years younger than Spencer—and who for a moment doubts that the brilliant, ready, quick-witted Mill would far outstrip the shy, nervous, plodding Spencer: the one would become a petted little pedant, and the other would be plunged into the deepest discouragement. These are not altogether fancy sketches. . . .

"Nothing is more certain in psychology than the vast difference in the rate of speed at which different minds work. This is not all a habit by any means. It is to a far greater degree an endowment.*

"Suppose in public examinations as much time was given as is desired by each applicant, and thereby quiet of mind on this point assured. Suppose in school work the difference in natural endowment, in physical energy, in physical health, in previous training, in home training, and, above all, the natural gait of the mind were taken into account in each case. Suppose accuracy, and reliability, and completeness of grasp and sincerity of purpose were put in their proper places in estimating the value of work accomplished, the Darwins would not then always be set down as dunces, neither would the Mills so enormously out-rank the Spencers."*

There is, as has been shown in a previous chapter, a physical basis for precocity and dullness. Prof. W. Townsend Porter has shown that the more successful pupils are taller as well as heavier than dull children, that they have larger chests, and greater width of heads. He recommends that grading be based rather upon height and weight, i. e., on a determination of the physical development of the individual, than upon his age or accomplishments. His tables also prove that the children approaching the average weight of their age are found at least one grade lower than our artificial system of grading would have it. Thus, the seven year old child of average weight (47.73 lbs.) is found in the first grade, not in the second. Those children of seven, who have reached the second grade, are above the average weight. The boy of average weight, 10 years old, is in the third grade; of 12 years, in the fourth; while at puberty, there are great variations.

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*Stanley Hall speaks in this respect of the "individual rhythm." G.

*It may be interesting to consult in this connection what the author of this volume has said about the system of valuing, grading, and promoting pupils as worked out by him in the Ethical Culture Schools of New York, and set forth in his little book, "A Working System of Child Study for Schools," Bardeen, Syracuse, 1897.

All this proves that real success and progress is a matter of biological development whereby mental and physical processes are intimately related. In other words, instead of mistaking one-sided brilliancy for an evidence of satisfactory progress, we should consider progress largely as a process of *maturing*. It is power, not information and examinable knowledge, by which we must gauge a child's fitness for higher tasks.

The culture epoch theory as set forth in previous chapters will be a safer guide for a rational system of grading than anything else. We have seen that there are distinct developmental stages in the life of a child, and that these do not closely correspond to average ages, at any rate that they do not follow each other in annual progression. Some are longer and some are shorter. It would, therefore, seem to be the simplest plan to establish groups in accordance with these natural periods. May be that this will be the outcome of the present confusion when once we shall be better able to apply psychological criteria to the daily practice of the school room. It is obvious that there is one main difficulty in the way of such an arrangement, viz. the fact that not any two children pass thru these developmental stages in exactly the same way, at the same age, or at the same rate of speed. The school groups would therefore never be thoroly homogeneous —there will forever be a need of continuous re-adjustment and individualization even under the most perfect system.

The difficulty will be largely overcome when we have an elastic and rational course of instruction, arranged in concentric circles, where information is insisted upon only to the limit of actual necessity; when due care is taken to recognize individual talents and powers; when there can be instantaneous adjustment and readjustment to the varying needs of individual groups. It is the author's opinion that a system of special teachers would often be better suited for such re-adjustments than the one-sided class-teacher system. The special teacher has the larger perspective of his work in various parallel and successive groups of pupils; and can therefore fit it better to these various needs, keeping his final aim steadily in view.

While we need not at once give up the grade system, adapting it gradually to our increasing enlightenment concerning the problem under discussion, we may even now supplement it by the establishment of ungraded classes which can be considered as the safety-valves of the system. Here may be placed, under the direction of particularly well-qualified teachers, those children who for one reason or another cannot keep pace with mass, and where they may be re-adjusted, or for that matter, receive individual attention. Such ungraded classes will prove particularly welcome where there are older pupils entering the school whose maturity is well advanced while they may need some coaching in rudimentary arts. Again, ungraded classes will be found helpful in the treatment of mildly atypical children. There may even be special classes for precocious pupils, where they would receive an educational treatment suited to their needs. For even they may be considered as atypical.

These considerations will throw light on the problem of promotions, and the principles upon which they should be based. Heretofore, and in fact up to the present day, examinations and percentage marks have been the main, or only means for determining promotion lists. Originally, examinations, held at the end of the grade term, were the exclusive criterion. When the viciousness of this system began to be recognized, promotion was based upon a combination of daily marks and examination records. Or, to mitigate the evils of the chance results of the one "examination for promotion," there were instituted series of tests, or a multiplicity of examinations in the course of a term, the average of which was then taken. Of course, these examinations were fit merely to test the capacity of the pupil to absorb, and reproduce, information; and the substitution of many tests for one final examination meant as much as driving the devil out by means of Be-elzebub. According to Dr. Sturgis, among the incidents of school life apt to be injurious and productive of chorea, there stand out prominently (1) written examinations; (2) moving into higher classes.*

The question of examinations as tests of fitness, and of their effect upon the pupils, is so serious a one that the author may be permitted to quote further from authoritative sources, so as to elucidate the situation. An examination has been called a "periodical inspection of results", "a kind of intellectual dress parade." It is claimed that such a day of reckoning is needed as otherwise the pupil, following the line of least resistance, would never make an effort to concentrate his thoughts and organize the results of his daily study. The pupil, in an examination, is required to be ready for the occasion, to have perfect command of his resources, to meet a crisis, to be willing to submit his work and his character, as shown in his work, to the most searching scrutiny. In this way, an examination resembles the trials of life, so that, even tho it may cause difficulty and suffering, it has its inestimable value even to the school child for the purpose of character training.

The question may arise whether, what may perhaps be well suited to the age of college and university students, would be equally adapted to the nature and needs of elementary children.

Prof. Friedrich Paulsen, of Berlin, recognizes the value of school examinations proper, those which arise entirely out of the exigencies of the instruction and have purely didactic ends. But against all other kinds, including examinations for positions, he raises grave objections. Among these are: 1. The examination changes the mental attitude of the student to the subject. The prospect of being examined necessarily turns his attention from the subject-matter itself and fixes it upon the examination; it therefore takes on a more external meaning. . . . 2. The examination gives to previous study a tendency to be superficial and directed to what lends itself to recitation. The knowledge that can be "shown off" counts for the most. . . . 3. In all examinations the most successful are those who come to them without strong tendencies or gifts in any direction, but who tread the even path of mediocrity, whereas natures with unmistakable and decided originality and special talents often suffer under them.

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*Cf. Will S. Monroe, "Chorea among Public School Children," Amer. Phys. Educ. Rev., III, 1.

"Why," says "the shade of Socrates," in an interview with Wm. Hawley Smith,* "I have been shocked beyond measure, a thousand times, as I have seen your young men and maidens go thru the process of what they call 'cramming for examinations.' For a few days before the test of their attainments they pore over their books, filling themselves with words, even as a toad fills herself with wind, till it would seem that the addition of another iota would burst them. And then they sit down and write for an hour, using what of the pent-up matter within them they may be able to command, in their present distended condition; after which, the ordeal over, they open the safety valve of forgetfulness, and in a week after they are as lank and flabby on the subject, and as unable to stand alone and say their say regarding it, as an empty meal sack is without ability to erect itself, and out of its nothingness to fill the bin."

On the score of the physical dangers, we should be reminded that the school girl is one of the most unfortunate victims of the pernicious system, and that examinations are often responsible for lasting menstrual disorders. Just at the time when the pubescent girl should be free from the cramped conditions of the school room, she is subjected to the trials of the grammar grades, with a daily strain of studies and tests. Examinations are threatening and harassing her mind at periods when she should have rest and should not worry. The anticipation of possible failure is working mischief of the most unpardonable kind. For the menstruating school girl of pubescent years is apt to be emotionally overstrung, and to be given to hysterical exaltation, both upward and downward—towards exultation as well as towards melancholia. The "blues" are a distinct functional disease. And on the very day of the examination, there are always many girls in every class or school who are at a decided disadvantage.

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*Educ. Rev., March, 1897.

A teacher meeting a pupil who had taken a Bryn Mawr examination in algebra the day before, asked to see the paper, and inquired what she had done. "Why did you leave out this problem" said the teacher. The pupil said that it had looked puzzling to her. "Try it", said the teacher. In five minutes the young girl had solved it correctly, and had written it out neatly. For want of that cool five minutes, she failed in her examination, and had to study algebra another year.

Of course some may claim that, examinations being a test of character, and approximating the actual experiences of life, this result is perfectly legitimate. But we may reply to this that after all, it was not the girl's presence of mind, but her algebra, that was being examined, and that for a deficiency of character the punishment, to make her study algebra another year, knowing it well enough as she did, is absurd, to say the least. Forcing a student to go over the same ground again is justifiable only when the proof of lack of mastery is given.

Of the injustice, deceptiveness, and viciousness of the *marking system,* especially in percentages, much has already been said. It will never enable us to size up a child's progress adequately and fairly, and it establishes a false incentive for the child.

As soon as we realize that the proper test for promotion has reference to general maturity, we shall understand that neither examinations nor marks will serve as a safe basis, that these are, at best, merely accessories.

Deficiency in one, or even several subjects should never be taken as a cause for holding a pupil back unless there is very unmistakable evidence of general immaturity. Let us remember that there are distinctly different types of children. Will you prevent a non-mathematical child from going on in language, geography, history, art and science because he is weak in computation? Or must the constitutional bad speller be prohibited from grappling with mathematical and scientific problems that would rouse forth his intensest interest and native genius, for the reason that he cannot readily recognize a bare bear or a fair fare? Mere repetition is unprofitable under most circumstances; it is usually better to provide for new opportunities of applying the unmastered art; these new opportunities will bring about new revelations and call forth fresh effort. And have we never heard of unexpected awakenings?

Holding back a child in a lower class means to tie him to interests which he has outgrown. It is as a rule much wiser to trust to his ability to go on with his class to higher work than to keep him back. He may grow with the demands made upon him; only when discovered to be a failure in the next class should he be placed—not necessarily back into the previous grade, but into an ungraded class where his special deficiency may receive proper attention while he will do the work of his class in all those branches which he has mastered sufficiently. Should it become evident that in certain things he can make no noticeable progress at the time, teachers ought not to worry, but simply leave him alone. This may sound heretic from the standpoint of the traditional school, but is surely just in regard to the needs of the individual. We cannot make every one conform to a common standard.

There are, as we know, maximum and minimum periods in the life of every child. An apparent falling back, dullness, or arrest of development may be due to a minimum activity at the time being. With such children we must have patience. The dull spell may not last long—there may be a process of unconscious adjustment going on within which will make him blossom out in the next grade so as to surprise us, especially when we allow him to develop along the lines of his special capacities and interests. In winter, the trees and plants are seemingly asleep. Will you force their foliage and blossoms before Spring touches them with his magic wand?

It has been said to be a common experience among telegraph operators that when they first learn their profession there will come a period when they will make apparently no progress at all, when everything seems difficult, desperately so, and their professional education seems to have come to a standstill. But all of a sudden, the veil will be lifted, as it were, and they will at once not only regain their former skill, but really achieve proficiency. During the "dead period," there had been going on subconscious adjustments, which used up all the mental energy, and, being once perfected, produced a sudden awakening to conscious mastery.

On the effect of non-promotion upon the pupils, Miss Julia Richman (quoted before) says this:

"The children who are not promoted are known as 'hold-overs.' A 'hold-over' who has missed a promotion because of illness, change of school, absence of the teacher, or any other reason for which the child is not personally responsible, occasionally makes a creditable record during the second term in the grade; but usually the unpromoted remnant will include the dull child, the careless or inattentive child, the child who lacks the proper foundation, and the child whose development has been arrested by some physical defect or retarded by faulty teaching. That the 'hold-overs' form the most undesirable material in the newly organized class is an inevitable result of this method of promotion; the incalculable injury suffered by the individual 'hold-over' has long been recognized by the thoughtful observer."

It is largely from the "hold-overs" that the class of children which are termed "troublesome" is recruited. In a discussion of the troublesome child in school, before the Kansas Society for Child Study, 1898, Supt. Glotfelder made these pertinent remarks:

"In every case the child is older than the average in his grade, and sixteen of them (those that had come under his observation) are twelve years of age, or above. Every child mentioned has failed of promotion once or more. . . . Many of the terms used in describing these pupils' faults, are synonymous. Probably all these troublers could be classified into three classes, the first and largest being the uninterested, those that from wide and various experience upon the streets, and in conversation and contact with those older than themselves, find the school exercises, planned for younger minds than theirs, stale and irksome; another class would include those who have little or no power to concentrate their attention upon anything, and so wander from one thing to another, craving the companionship and conversation of those about them; the third class includes those actually antagonistic to the school, its discipline, its exercise, and all its requirements."

As helps towards avoiding the opening up of too wide gulfs between the different types and groups of children, in matters of mere information, there have already been suggested a greater elasticity of the course of study, short divisions of the subject-matter, and principally the arrangement of the subject-matter in what has been called concentric circles, so that practically the same work, on different planes, will be done all along, with occasions for frequent repetition and re-inforcement, in careful adjustment to the successive stages of maturity, widening the horizon of the child at each step, taking in more and more comprehensive views, into greater depths of distance and abstraction.

It is imperative, however, that all possible precautions be taken, by removing artificial standards, stimuli, and incentives, rewards and demerit marks, to establish the right conception of promotion in the minds of the pupils, and for that matter, of their parents. The very term "promotion" is misleading as it implies the idea of reward, while it should signify merely the idea of growth. Promotion should be considered as a reward as little, as non-promotion should mean a punishment or disgrace.

It may be contended that the philosophy of pace-making and competition has pointed to the ambition to excel, not to be beaten by others, as a powerful incentive to increased effort. Granting this, we may admit that competition for honors may have a beneficial effect in the race for knowledge of scholarship, when judiciously employed. There will, even under the most perfect system of grading and promotion, be enough margin for wholesome competition. But the primitive instinct to excel others so as to get ahead of them, should be early converted into an ethical force. It must be tempered with the desire to help the weak, and be transformed into an ambition to excel one's self.

Pupils of equal maturity should be kept together even tho they may differ in matters of age, talent, information, skill, and accomplishments. Rather than making the gulf between them increasingly wider have them appreciate the value and beauty of co-operation and mutual helpfulness. The bond of fellowship will be found to be in the community of interests characteristic of their respective periods of development.

The slow ones need the stimulus from the quicker ones; the quick ones need the clog afforded by their slower mates. The quick workers can be taxed more by extra work which will widen their experience and at the same time add to the sum total of the class work so that even the slower pupils may derive their share of benefit from the contributions of their more rapid comrades.

Let us not forget that overstimulated precocity has to pay its penalty later on. Unless borne up by a powerful vitality such as may be found only in rare instances, real precocity is a curse which leads invariably to serious nervous tension and depletion.

The lesson we may draw from all this is *that we must individualize.* The basis of rational grading and promotion is a better knowledge of the individual needs of our pupils.

CHAPTER XVI

Hygienic Suggestions

THIS chapter is not to be devoted to the discussion of diseases and abnormal conditions, but rather to that of prophylactic hygienic measures. But attention should be called to the following points:

First: There ought to be connected organically with every school a school physician, for the purpose not only of supervising the children so as to control the spread of contagious diseases, but also of giving general hygienic advice and direction, of assisting in the discovery of defectives of all kinds, and of being the teacher's assistant in every case where physical and mental abnormality require a comprehensive diagnosis.

Perhaps the first institution where regular medical inspections and examinations were provided for was the Workingman's School (later enlarged into the system of Ethical Culture Schools) of New York, under the direction of the author. This dates back to the year 1891. Since that time a number of city systems have appointed a regular staff of physicians, and their functions are becoming more and more clearly defined and organized. Everywhere the physicians have soon found opportunity for demonstrating the paramount necessity of the work for which they have been detailed. In almost every instance of investigation, appalling conditions were discovered to exist, especially with regard to the exposure of the pupils to the spread of contagious diseases.

Second: Every teacher, and especially every school principal, should have training in the ready recognition of the ordinary symptoms of the common children's diseases and of other physical danger signals.

Third: There must be a strictly enforced system of regulating the attendance in the case of infectious and contagious disease.

Fourth: All abnormal, defective and atypical children, including nervous children, stammerers and others with suggestive habits, should be removed from the ordinary school and taught in special classes or institutions.

This article is especially concerned in such hygienic suggestions as will tend to make the school conditions normal for generally normal children.

First in importance here is the location and equipment of the schoolhouse as such. There must be selected a location affording an abundance of light and air, freedom from obnoxious noises and odors, inspiring and helpful views across the surrounding country, etc., etc. In a large city these conditions cannot always be fulfilled, and compromises more or less fraught with danger must be resorted to. Then there should be fireproof construction, convenient stairways and elevators, airy basements, perfect sanitary arrangements. All these are largely architectural problems and need not be elaborated here. Suffice it to say that care must be taken to have the schoolhouse surrounded by ample and shaded playgrounds, with trees and shrubbery and flower beds, to afford outdoor recreation and exercise. Gymnastic apparatus for outdoor practice, and school gardens proper, ought to be provided; and there ought also to be convenient places for kindergarten and primary work in the open air. Sand heaps, croquet, tennis, and other equipments for plays and games are valuable accessories.

One point, however, ought to be emphasized. The modern tendency to erect large central school buildings with many stories should be decidedly discouraged. The assembling of great numbers of pupils in one building increases the danger of exposure in case of contagious diseases. But the main objection to tall buildings is the stairways. There has been established a very distinct relation between heart disease and tall schoolhouses, and the climbing of stairs has often a very injurious effect upon pubescent girls. Smaller schoolhouses are therefore preferable.

But the room, or rooms, in which the child spends so many of his waking hours, demand our particular attention. The first warning must be against overcrowding. In some schools, especially in large cities, this overcrowding assumes criminal proportions. Not to speak of the impossibility of individualizing instruction and discipline in an overcrowded room, the presence of too many children in one room vitiates the air, promotes disease, and produces generally unhygienic conditions. Thirty pupils—under especially favorable circumstances, forty—to a teacher should be the extreme. If there could be groups of twenty, it would be better. Where there are more than twenty-five in a room, the teacher ought to have an assistant.

The first requirement of a proper schoolroom is a sufficient amount of light and air space. The figures determining these factors can be found in any handbook on school hygiene. Ventilation, e. g., arrangements for drawing off the vitiated air and for supplying the room with a constant current of breathable, pure air, is even more important than an exact allowance of air space. Proper ventilation without producing draft is a matter of engineering science. It is usually, and causally, connected with the maintenance of the proper temperature in the schoolroom. There is as yet hardly a system of heating invented which gives an even temperature all over the room; usually those children who sit nearest the heating apparatus (be it stove, register, or radiator) are being boiled and driven frantic, while those who sit at a distance are chilled thru and thru on cold days. School life in winter is full of dangers; overheated rooms weaken the power of resistance to the effect of cold weather, and cold rooms lay the foundation for colds and bronchial troubles, digestive disturbances and the like. Yet we should remember that children, whose respiratory functions are more rapidly operative than ours, and who are moving about more energetically than we do, need less heat than adults. The temperature to be maintained has been fixed by the Buffalo Board of School Examiners in its seventh annual report as follows: In classrooms, with thermometer in center of room, 68 degrees F.; with thermometer on unexposed wall, 70 degrees F. In halls, 62 degrees F. *Observe and rely upon thermometers—do not rely upon personal feelings.*

It should be observed that care must be taken not to have the air in classrooms too dry; there must be the proper degree of humidity. Sometimes in bad weather there is too much of it, not only because of the general dampness of the atmosphere, but because the wet clothes of the children add a large share by evaporation in the warm room. Children should be made to take off wet shoes and stockings on coming to school; they should be instructed to bring extra garments and shoes to school on wet days, so that they may change their wet raiment for dry. It is needless to repeat here that it is perniciously dangerous to children, or to grown people, to sit for hours in damp garments. Provision should be made to have a place in school where damp shoes, stockings, and other clothes can be dried. All wardrobes and cloak rooms should be ventilated with particular care. But we may even go a step farther.

School washrooms with ample capacity to accommodate all the children with satisfactory promptness, and school baths with shower baths, tubs, and swimming tanks, will in time be common institutions in all schools. They have been widely introduced in many places, notably in France and Germany. They afford not only opportunities for cleansing, but also for healthful stimulation and exercise. A special article might be written on cleanliness of hands and fingers, particularly of the finger-nails; they are hotbeds of bacteria. But cleansing the bodies, where that is needed, does not suffice. The clothes of many children are sources of danger as well, apart from the disgusting odor that often emanates from them. Many change their underclothing but seldom, and their upper garments are worn, uncleaned and unaired, for long periods at a time, gathering dust and microbes and issuing the stuffy smell characteristic of neglected homes. As long as we cannot change these homes, it is a simple matter of self-protection to provide means in school for the proper cleansing of the children's garments, eventually even for furnishing them with temporary substitutes. But possibly the cleaning process of both persons and garments could go on simultaneously.

There is further the adequate cleaning and disinfecting of the schoolrooms themselves, as well as of the utensils and materials employed in the daily work of the school. One of the first counsels in this regard would be: Keep the dust out as far as possible,—not only by preventing the children (by proper arrangement for cleaning, brushing, and scraping) from carrying dirt and dust into the building on their shoes and in their clothing, but also by avoiding within the four walls of the building and the room all those things and practices which would cause, stir up, and re-distribute dust. Mark: every cubic centimeter of air in an ordinary room within the confines of a city contains 400,000 particles of dust. How many there may be in an ordinary schoolroom I do not know. Not only is there an ever-present danger from the admixture of micro-organisms, but these enormous clouds of dust clog our respiratory organs and stop up the pores of the skin. Use, then, as dustless a crayon as you can purchase on the market, and wash your blackboards with a wet sponge or rag instead of using those vicious erasers. Throw your sponge away after use, for few things are more effective as germ breeders than sponges and brooms. Wash your rags once a day, and do it well. Moist cloth, dipped in a solution of corrosive sublimate (bi-chlorate of mercury, 1:3000) for disinfection, should be used daily for the cleansing of seats and desks, etc. Employ moist sawdust for sweeping the floors. Burn up all dusters and other hellish devices for raising and distributing dust under the pretense of cleaning. The windows should be washed once a week to secure the full benefit of the light supply for which they are intended; and the walls need frequent cleansing and ought to be recalsomined annually, as this process also secures excellent disinfection. All schoolroom decoration should therefore be simple and inexpensive, so that it can be removed and renovated without undue expenditure and chagrin.

Attention must further be called to the dangers lurking in apparently innocent utensils and materials. Slates, apart from their bad effect on vision and handwriting, harbor countless colonies of microbes and bacilli. Soap and towels, when used in common by children; likewise common drinking cups; pencils which are kept in common receptacles and exchanged; even the bits of chalk which wander from hand to hand, are carriers of infection. The same may be asserted of the books that are not individual property. Clay, especially when kept moist and used over and over again too long, is particularly dangerous. Children should wash their hands carefully (with soap and some disinfectant) before and after using clay; in fact, by insisting upon scrupulous cleanliness of hands and face, much of the danger here referred to may be obviated. Still better would it be if a suitable system of disinfection at regular intervals would be inaugurated to supplement the measures for daily cleansing. In times of epidemics of any kind, even the seemingly most trivial, such disinfection should be undertaken daily after school hours. Formaldehyde (formic Aldehyde, CH_2O), a gaseous body formed from methyl alcohol by oxidation, is a very effective and easily applied disinfectant which will even cleanse the utensils contained in the schoolroom in a satisfactory manner. It requires no special mention that all sanitary appliances, toilets, washbasins, and the like, must be kept absolutely clean and disinfected.

One of the most effective destroyers of disease germs is sunlight. Abundance of light—pure, diffuse light—in all parts of the room is a pre-eminent requirement of schoolroom hygiene. As there is such an enormous difference between sunlight and artificial light, even if each desk were provided with a special lamp, care should be taken to preserve the eyesight of growing boys and girls by having them work as much as feasible in daylight, and to warn them against the peril of working and reading under insufficient illumination. Let the light supply, be it repeated, always be plentiful, and available even in the farthest corner of the room. "The pupils sitting farthest from the windows naturally adopt the habit of holding the book nearer to their eyes when the light is dim, and in this way become nearsighted, and, thru sympathy with the strain upon the eyes in study, the stomach becomes disordered. Nervous dyspepsia and headaches abroad in the community owe their origin to some extent to this defect in school building. To bring about a proper distribution of light, avoiding unpleasant and blinding reflection and glare, attention must be paid to the use of proper window shades, the tinting and finishing of walls and ceiling, the mat-glass and shades, the tinting and finishing of walls and ceiling, the matter of blackboards (which would be more profitably green boards), etc. The infalling natural light is, of course, greatly modified by the color of the room. Too much blackboard of the ordinary sort causes a great loss of light by absorption. Although there is some difference of opinion as to the best colors for wall decoration, it seems that the red end of the spectrum is less desirable for rooms in which fine work is demanded, as it absorbs too much of the infalling light. The lighter and more delicate shades of yellow and gray are recommended; a light buff tint of dull surface is also good. The wood work should receive a coat of light paint harmonious with the rest.

The effect of a school room should be pleasing, bright, invigorating, inspiring. Tasteful combinations of color and decorative motives of a simple, restful kind; flowers on the window sills; greens and pictures on the walls and doors; here and there a bit of suggestive statuary; specimens and collections of interest and value; and all-pervading, a home-like atmosphere,—these will make the room a positive power for good to pupils, and to the teacher as well. For what contributes to the healthy and inspiring influences of the place where we spend our working hours affects not only our physical, but also our mental and moral status.

Speaking of the requirements for keeping the visual capacity of our children, as well as their nervous energy in general, intact, reference may be made to the hygiene of reading and writing, and fine work in general. "The implements we employ in our 'daily tasks,'" says O'Shea, "are responsible for much useless drain upon the nervous system,—such apparently simple and harmless things as writing pens, pencils, and the like. Co-ordination of the peripheral muscles involves a relatively larger expenditure of energy than coarser, less delicately adjusted movements. Thus, fine needle work is more fatiguing to most women than washing dishes, and 'getting pigs out of clover' is a much greater strain on any man than playing golf or croquet." Let us be reminded of the proper size and body of type, length of line, size of page, etc. Glazed paper to read from is much more injurious than dull paper, and the white sheet should be replaced by the tinted page, preferably of a dull, yellowish-gray color.

A source of much functional disturbance in school is the improper posture of children in standing, marching, sitting, largely caused by too much confinement to the unhygienic and non-adjustable seats and desks of the ordinary school. Nosebleed is a not infrequent result of leaning forward in the seat to bend over a book. Many investigators have been struck by the number of children that presented some irregularity of growth, being afflicted with a marked lowering of the right or left shoulder, scoliosis, lordosis, and round shoulders, while the habitual standing position of about one-third of all approached more or less closely to what Bernard Roth has aptly named the "gorilla type,"—abdomen protruded, chest flat, and head shoved forward. There is also a form of scoliosis produced by fatigue. This latter point is significant; for improper seating—apart from its direct effect upon the growth of the bodily structure—causes an enormous mental tension of which few are fully aware. "People who do not habitually stand or sit in such a manner that the body is poised, as it were, and at rest, will certainly suffer for their error in lessening efficiency in both physical and mental work. The attention of the student is called to the importance of the matter of right seating in the hope that he will try to arrange his chair and desk so as to save nervous wear and tear to the fullest possible extent. The matter of seating is of consequence not simply from the point of view of saving energy, but it has an important influence also upon the generation of force. A student leaning over his desk, with his lungs constricted and the arteries leading to the head compressed, is in a good way to foster mind wandering and napping. The organism then becomes clogged, as it were; it does not receive its due of oxygen, as a result of which the brain must certainly be seriously handicapped."*

Nervous tension, however, is produced in many other ways. There is need of a proper recognition of the hygiene of instruction. A rational, elastic course of study following the natural lines of growth is the first requisite for wholesome work. To meet individual differences, there should be a certain elasticity of requirements and the possibility of instantaneous adjustment whenever a child, or group of children, evinces signs of fatigue or strain. The question of recesses deserves attention. Some teachers have injudiciously suggested a one-session plan under high pressure, with no recesses, or with very brief respites only, so as to get home early in the afternoon. Such a plan is utterly objectionable. Concentrated attention and intense effort during a very few brief periods is all a child, even of adolescent age, can afford; and breaks —that is, shorter and longer recesses—between these periods of work are indispensable. It his been convincingly demonstrated that a long noon recess, with ample time for lunch and rest and outdoor exercise, improves the quality of the work all around.

And then, we ought not to be stingy in the matter of holidays and vacations. Far from losing time, we gain time by timely intermissions. While our long summer vacation is probably an evil, there should be shorter and longer vacations spread over the year and come at proper stages,—at the beginning of spring, at midsummer, at harvest time, and at the winter solstice. Instead of suspending operations altogether in summer, a change of occupations, a transplanting of the school into the country wherever this is feasible, concentration on outdoor work, horticulture, agriculture, nature study and geography, manual occupations, art sketching, physical exercise, and the like, will be found advisable. The vacation schools conducted for a number of years in New York, Chicago, and other places have demonstrated the wisdom of such a course beyond the shadow of a doubt.

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*Prof. O'Shea, "The Conservation of Mental Energy," Journal of Pedagogy.

Our ordinary methods of school instruction imply a great degree of overstimulation, while the nagging methods of discipline produce a large amount of worry and tension in the minds of our pupils. As sunshine is the most powerful agent in destroying the germs of bodily disease, cheerfulness is the best guarantee for a normal condition of the mental and moral organism.

But having provided healthy conditions and stimuli as far as our own foresight will avail, there must be conditions in the children enabling them to respond in a normal manner. As to these, referring, for example, to the proper amount of sleep and nourishment, to hygienic clothing, proper care of the body, and the like,—the teacher may be supposed to have little influence and responsibility. And yet, as to his responsibilities, since teachers are the only ones professionally trained for educational functions, we may justly expect them to do their share toward bringing about healthier conditions, even of home life, than are generally found. Thru visits to the homes, thru parents' meetings, mothers' clubs, the co-operation of the press, much can be accomplished. Yet there are direct measures which will reflect themselves in the homes. In the first part of this chapter some of these have been enumerated.

As to securing for the children the necessary amount of rest, let us be cautious and reasonable in the matter of home work.* In order to bring about a more rational style of dress for children of both sexes, where there is less of show and more of hygiene, let us insist upon proper habiliment in the gymnasium and on the open air playground. Several European governments like the Russian have proclaimed that school girls are henceforth forbidden, under penalty, to wear corsets. Such an opportunity is not ours, but we can do much toward fighting this pernicious "garment" by introducing a rational gymnasium gown and by encouraging healthy sports generally. The school physicians, with their measurements and examinations, will effectively come to our aid in this matter.

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*While reading the proofs of the first publication of this chapter, the writer had opportunity of watching some school girls, about twelve years old, trudging home from a New York Public School, carrying packs of books so large and heavy that he asked the children to allow him to weigh them. In one of these packs there were about a dozen printed books, as many copy books, and a large geography. This pack weighed 11½ pounds! It was admitted that the children, pupils of a Fourth Grammar Grade, did not always carry quite as many books; but when the regular pile was weighed it was found to represent still a load of over seven pounds. The books were needed on account of the home work required. Do teachers and principals who oblige growing children to carry such heavy and bulky packages home and back to school, realize for how many cases of strain, scoliosis, and other ailments they make themselves responsible?

An English surgeon calls attention to the great discomfort, or actual injury, caused by ill-fitting garments worn by a growing child. Clothing for young children is usually made in large quantities at a time. All the garments of the lot are cut after a fixed pattern, the different parts being pieced together rapidly and stitched by machine, all at the least possible cost. The clothes are usually graded according to age instead of by size, and so a child who is slightly larger or smaller than the average for his years gets a misfit. But even those whose size and age agree are often no better off. The parent may notice that the child stoops and cannot be made to carry himself or herself erect. Some one, perhaps the family physician, may suggest that the frock is not loose enough, but the mother demonstrates to her own satisfaction that it is, by gathering up folds of the garment in her hands or by running her hand under it. But if the frock is removed and measured front and back, it will be noticed that the measurements over the chest and back are the same; in other words, the armholes are directly in the center. If the child's arms were also directly in the center, the shirt or blouse would be an excellent fit; but the child's anatomy is not so ordered, nature having intended that its chest should bulge out to make room for the lungs, while the back should be flat and more or less rigid.

A very important factor for normal mental and moral functioning on the part of the children, not to speak of physical growth, is proper nourishment. Here much neglect has been recorded. Thousands of children, even from good homes, come to school without sufficient breakfast, and hundreds of thousands have to be content with a cold lunch at noon. Louise E. Hogan in her article on "Diet for School Children," makes these suggestions: "The custom of sending children to school upon a light breakfast, or none at all, with a cold lunch for the noon meal, is reprehensible to the last degree. Or, if a hot dinner is provided, the habit of rushing home at noon in a limited time to consume eagerly and rapidly the food which should be eaten leisurely and enjoyed, has a strong influence upon the integrity of the child's health, and it should not be allowed under any circumstances. Constant nibbling between meals should be forbidden by both parents and teachers. A half hour's play should be given between the eating of a meal and the beginning of study. Children should not be allowed to gulp down their meals in order to have more time to play. An enforced presence at table or lunch basket for the time necessary for slow consumption of food will soon regulate this matter."

The latter point is important; insufficient chewing and salivation is responsible for much dyspepsia. As many parents are often too ignorant or too poor to make proper provision, and as even well prepared lunches are likely to become stale before they are eaten, the furnishing of meals (breakfasts and luncheons) has become a well established institution in many schools. The food consists of sandwiches, soup, warm hash or stew, assorted cakes, and hot tea and coffee. The pupils cannot spend more than ten cents a meal, and they can get a good one for five. There was a cooking department in a certain high school, and the teacher in charge co-operated with the Superintendent with the establishment of hot luncheons as a result. As early as 1892 in France, school children took their midday meal at a public table provided by the state. They pay for what they eat with counters bought by their parents at so much a dozen. Parents who cannot pay are provided with counters free, which their children pass in without their schoolmates knowing that they are eating the bread of charity. Thus every child is sure of one good meal a day. "There is wonderful sympathy," says the School Journal, "existing between their midday lunch and the afternoon brightness of the children." That proper attention should be given to the matter of regular and complete digestion, may be remarked in passing.

What has been said so far refers, it seems, exclusively to the welfare of the pupils of the school, and appears to imply that the teacher is beyond the reach of unwholesome influences, that he has an iron constitution both mentally and physically, so as to be altogether unconcerned in provisions of a sanitary nature, or in the hygiene of instruction. And yet, we know well enough that this is not the case; that if the pupils suffer from unhygienic conditions, the teachers are sufferers also. Especially as he is mostly a she, the severe physical and mental tension to which the teacher is exposed creates havoc in the delicate organism which often strives in vain to adjust itself to abnormal demands and circumstances. There is a long record of breakdowns and nervous collapses, temporary disablements and lasting injuries. Yea, even tho it may not always come to such serious consequences, the unhappiness, worry, and morbid moods in the teacher which reflect themselves so unfortunately and mischievously in the spirit, temper, and work of the children and which form, indeed, the worst unhygienic condition for their activity, are sad enough to observe and easy enough to explain by prevailing unwholesome influences. There is unnecessary overwork, an overburdening with harassing details, and overabundance of wearisome rules and regulations, too much cramming for examinations, and monotonous, pedantic work with the children; often lack of inspiration from the head of the school, or of the school system, or from the schoolboard, or from the community at large; and last but not least, there is the irritating uncertainty with regard to the tenure of the position, in spite of faithful and effective work, and the ever pressing financial anxiety caused by insufficient salaries which, in some states, are on a par with the cost of maintaining paupers.

Better sanitation of schools, better hygienic conditions generally, more rational and elastic courses of study, and all those things which make the school life of our pupils more normal, more healthy, more certain of good results, and above all happier, will also favorably react upon the teacher. Even he is, as it were, a human being. And let us remember that upon him and his normal condition depends the greater part of the influences that shape the school life of our children. He is, even in matters of the hygienic administration of a schoolroom, the executive officer whose ability, intelligence, faithfulness, consideration, and ready tact are determinative. The very best hygienic equipment and the most psychological course of study will remain ineffective without an effective management and careful application by the teacher. And from him must radiate those inspiring influences which set the mental and moral organism of the child into normal activity to secure normal progress and higher differentiation. In applying our best hygienic knowledge to the needs of the teacher as well as of the pupils, let us remember the incontrovertible fact that, after all, the teacher is the school.

CHAPTER XVII

Problems of Discipline

THE discussion of discipline requires a clear conception of its meaning and object. Discipline is not only that condition which enables a pupil, or a class, to put their best efforts to their work, but also that force which tends to develop in each individual an amount of self-control and self-direction sufficient for right living generally. The school contributes its share to the building up of this sort of discipline, altho, of course, this share varies in amplitude in accordance with the influence a school succeeds in exerting, and is, at best, but a part and fraction of the disciplinary influences potent in the life of a child. It is evident that many factors enter into the sum total of these influences, factors upon which a healthy disciplinary condition depends, and it requires some insight into these factors and influences to appreciate the full meaning of disciplinary effort on the part of the educator.

The prevailing notion of discipline is based on gross misconceptions of its character and purpose. It is superficial and perfunctory. It is mechanical and dead. It is a sham and a delusion. It means an abuse of the significant terms order and attention. "What is the aim of the teacher?" once asked Col. Parker, the great pioneer for better methods in our schools. "Some think of nothing but keeping the children still; they cry out for order; their aim is stillness. It is often obtained by the expenditure of cant, hypocrisy and wickedness. The attempt is to look like an angel in the face while the devil is in the heart."

The idea of discipline has been so long connected, in the minds of many, with the notion of *punishment* that the term "to discipline" has come to mean almost the identical thing as "to punish". Children playing "school" will be found to take greatest delight in administering punishment; this seems, in their minds, to be the dominant element of the teacher's functions. To tell the truth, very little faith is to be placed in punishment under otherwise normal circumstances,—in its moral effect,—or even in our *right* to punish, as long as punishment retains the old significance of "retaliation", or "revenge", "penalty", "chastisement." It is true we have, in these modern times, learnt to appreciate that, after all, the only function we have as educators is that of placing the child into the position to work out his own salvation. We are neither his masters nor his beadles. Sometimes, perhaps, in mediating to him experience so as to train him in the faculty of adjusting himself to his surroundings, or to prepare him for future emergencies, we may have to employ means which symbolize, or interpret, to him the forces and laws of nature which he not yet knows. In this process, we may be obliged, occasionally, to use forcible measures, even "corporal punishment", if you please, and were it only to make it plain that he must submit to our guidance as we have to submit to the divine order of nature. If the child himself represents a lower type of humanity, with brutal instincts and irrational emotionality, we may have to take recourse to methods which are adapted to his special case while they would be utterly out of place with the majority of children. In fact, the teacher in the ordinary school will have little occasion for desperate methods; children who would seem to require them are in need of special diagnosis and require expert treatment. Then, again, methods of "discipline" adapted to young children who represent the primitive stage of development are ill-chosen for those who have outgrown that stage. Each developmental level has its own disciplinary laws.

But the proper administration of disciplinary measures must rid itself of the character of punishment pure and simple. "Evil must be resisted, but we must not retaliate", said Dr. Paul Carus. We must assume the same attitude towards the youthful offender in the schoolroom which enlightened criminology takes towards abnormal or atypical members of society. The new view of the function of criminal courts has not been realized in practice to any extent, and there is still much miscarriage of justice. But the reform must come along the line of what has been expressed in the words of Dr. Edward F. Brush, who once said: "When our courts of justice recognize that their functions are not to avenge, but to cure society of its diseased members, and that the treatment must be scientific, effectual, and humane, then the sentiments exhibited toward the criminal will be the same that we display toward the person afflicted with small-pox, typhoid fever, and the like. As organized society we have the right to protect ourselves both against the unfortunate criminal and the unfortunate person afflicted with a contagious disease, but this right should not be deemed the right to punish. All men of scientific turn of mind who have made a study of criminal anthropology are fast approaching the physician's position regarding such questions".

In the matter of public administration of justice one notable step forward has been taken which is of particular value to the educator: the establishment of special courts for juvenile offenders, coupled with the system of probation.

If this is the right attitude toward criminals, it should be easy for us, as educators, to assume the same position toward the more or less innocent transgressions which confront us in the schoolroom. A teacher ought never to get excited, as little as a physician would when called upon to handle a case of persistent chills and fever; children should never succeed in angering us, or arousing in us a desire for retaliation. A child's standard of morality has little relation to the adult standard. What to the adult would be immoral, has perhaps no significance to a child. The child is mostly influenced by unconscious imitation and suggestion, and by the formation of habits of response for which his environment is largely responsible. Children act by impulse, not purposefully. We cannot suppress impulses altogether; we may divert them. If the gratification of an impulse should invariably be accompanied with unpleasant feelings, it will expend itself in another direction. This is the logic of "punishment".

A scientific and charitable view of children's actions was not entertained by our predecessors in schoolmastery. They believed in the native depravity of their pupils, and their whole career was one continuous warfare with the devils possessing them. This prospect was even one of the reasons why women were for a long while thought incapable of teaching school; they lacked the physical strength which was supposed to be necessary for a successful fight with the perverse instincts of the traditional pupil. An Eton headmaster flogged eighty boys in one night. There is the instructive record of the old Suabian schoolmaster who, during the fifty-one years and seven months of his official life inflicted 911,527 blows with a rod, 124,010 blows with a cane, 20,989 taps with a ruler, 136,715 blows with the hand, 10,235 blows over the mouth, 7905 boxes on the ear, and 1,118,800 raps on the head. Seven hundred and seventy-seven times he made boys kneel on peas, and 613 times on a three-cornered piece of wood, made 3001 pupils wear the dunce cap, and 1707 to hold up the rod.

This schoolmaster "Hauerle" (literally: "The Little Beating Master") may be a myth; but schoolmasters of this sort have surely been typical for centuries.

The old idea of punishment as a method of discipline, i. e. discipline thru retaliation or revenge, is the result of a lack of scientific insight, especially of psychologic understanding. Let us not forget that we can never radically change a child whatever influences we can bring to bear upon him—we can only develop those qualities which he already possesses in a manner as will turn them to best advantage. This implies, to be sure, also a repression or re-direction of impulses and instincts which are disadvantageous from the viewpoint of constructive civilization. But this repression and re-direction must after all come from within, to be lasting, from an awakening of the inhibitory powers of self-control and higher motives. A mere external repression would never be permanent.

Old-fashioned punishment is negative in character. It may act as a deterrent inasmuch as the child receiving a pain sensation of some kind may be momentarily checked in his unbridled impulse and have time for reflection. Even if the punishment should be "deserved," that is to say if there was justice and fairness on the part of the teacher, mere punishment goes no farther. A teacher has been quoted as saying: "When a child is punished I sometimes think that he feels that he has had his way, and that having paid the price the account is squared. If willing to pay the price he feels that he can do the same thing over again; no finer moral deterrent having been infused by the punishment."

Punishment is often enough the confession of weakness on the part of the educator. If we could, or knew how to, control at every moment all the influences working upon the child, there would be little occasion for abnormal development. Punishment, then, which is called forth by some sort of real or seeming perversion in the child, is frequently a desperate attempt to remedy the effect of our own helplessness, neglect, ignorance, or blunders. If we would always consider this fact we should be less ready to punish the child; sometimes the punishment should be applied "higher up". And then punishment appeals to one of the lowest and most primitive instincts of childhood, to fear. Fear, however, is the worst possible incentive to right doing. It has its place only on the lowest rung of the ladder of the child's evolution.

We shall reach the best results by kindling in the child's breast the right incentives; and as each child feels and acts and reacts in his own individual way, the only rational method to reach him is to study him as an individual and to employ individual tests and incentives. Generally speaking, positive measures will be found the most effective ones: encouragement, positive suggestion, making the child believe in his own powers for good.

In determining what factors constitute a rational discipline we must first consider the *causes* of those breaks and defects which may call forth disciplinary measures. There is no *one* such cause, and the cause is not always of what may be styled a moral nature. The doctrine of original sin and total depravity has worked so much mischief in the ethical and religious evolution of mankind that we should, in our dealing with children, eliminate it from our pedagogical catechism.

In the course of countless ages, since the early beginnings of the human race on this globe, there has been evolved a type of man which we may call the normal civilized type. This evolution was controlled by the well-known law of the survival of the fittest. The civilized type is the normal type of the present time because it most closely corresponds to the conditions which determine human existence on earth. Every deviation from the normal type stamps an individual as more or less exceptional. As will be shown in the chapter on defectives, and in the chapter on criminality in children, there are several kinds of true abnormality. One is caused by arrested development; the second by pathological changes. The first class comprises those individuals whose development was normal enough as far as it went—but it was checked for some reason or other before it reached the present normal level of typical man. Persons of this class represent a more or less primitive or savage type, with aboriginal instincts in full force which have been, in normal man, restrained by the effects of later civilization; and with a lower degree of intellectuality. Defectives of this kind are seldom redeemable. They are the congenital idiots, criminals, degenerates, etc. In the pathological group, on the other hand, the defect is the result of disease, of functional disturbance. Derangements of the nervous system are at the bottom of many of the symptoms observable in these individuals, be they of a physical, intellectual, or moral nature.

As in other pathological cases, there are in these, different degrees of severity. Some are chronic, others acute; some individuals will forever retain a certain amount of irregularity; with others, the irritation, derailment, or weakness is only temporary. Some will need special treatment, in special classes or schools; others can be dealt with in the ordinary classes. But in every instance curative, not penal, measures are required in the handling.

The author has carried on special investigations of the problem of the exceptional child, and refers to his other publications on the subject. It has been his endeavor to evolve a suitable classification and terminology which could be used as a working basis for further researches, and this classification, as finally formulated in a paper presented before the Atlantic City meeting of the American Academy of Medicine, has met with a cordial reception and is at present recognized by many as a helpful starting point.*

Some seeming abnormalities are really symptoms of normal conditions. Let us be reminded of those periods in the life of a child when grave functional changes are taking place, as for example the fatigue period from 8 to 10 years of age, and the pubescent and adolescent periods from 12 to 20. Judicious and discreet handling of these cases is particularly mandatory lest the temporary aberrations and morbid developments, due as they are to natural irritations of the nervous system at these periods, lead to permanent defects. One of the characteristic troubles of both these periods is truancy, which in these cases is largely due to reverberations of the migratory instinct, as set forth before. Says Hawthorne, in his "Twice-Told Tales", in beginning the story of "Little Annie's Ramble": "She feels that impulse to go strolling away—that longing after the mystery of the great world—which many children feel, and which I felt in my childhood." And so Annie and Hawthorne wander forth, forgetting to tell anybody of their ramble, so that the afflicted mother had to send the town-crier after the strayed child.

In fact, most cases of truancy may be explained not so much by an inherent viciousness of the child, as by conditions which make school life a burden or a monotony to him. The normal child in a school adapted to his needs will never play truant.

The cause of children's seeming misdemeanors is often grossly misinterpreted. Not only that we misjudge the motives of children too frequently—we take it for granted that the child is to blame when it is really ourselves, or the conditions under which the child works that are responsible. A child may not really know or understand what is expected of him, and may need information and help rather than punishment. And again, physical irregularities, in digestion and circulation, in hearing and seeing, ill-fitting clothing, lack of proper nutrition, etc., may be the potent causes of irritation and sulkiness. Indolence is in many instances a disease, not a moral defect. And even if it were a "moral" defect, what does that mean? It implies lack of will power, lack of self-control, of application and concentration. It means defective development of the higher association centers, of inhibition and voluntary adjustment. The cause of all this may be constitutional; it may be the effect of arrested development, of functional disturbances in the nervous system, and what not. Let us seek for the cause, and remove it if we can—not punish the symptom. A similar argument may be advanced in the matter of children's lies which require a particularly intelligent handling.

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*Cf. (a) "Classification of Exceptional Children as a Guide in Determining Segregation", Bulletin of the American Academy of Medicine, Vol. X, No. 5, October, 1909.

(b) "Mid-Year Statement of the National Association for the Study and Education of Exceptional Children", Watchung Crest, Plainfield, N. J., September 1, 1909.

Furthermore, an overheated or overcrowded room, lack of oxygen and of exercise, fatigue, nervous tension due to unhygienic conditions of work and program, of seats and desks, and light and air, etc., etc.; the effect of the weather upon pupils and teachers, and many other things may be responsible for many disagreeable happenings in the schoolroom. It has been statistically proven that more crimes and suicides have been committed, and more school punishments recorded, on cloudy days, or when the air was oppressive, the weather threatening, and the electric tension excessive, than on bright and pleasant days. And have the varying moods of the teacher nothing to do with this effect? Again, sometimes the child comes to school from a stormy home atmosphere which has swept away the current of his energy and left him deplete of cheerfulness. In other instances, a refreshing or cleansing bath will readily wash off the repulsive ugliness which had clogged the child's physical and moral pores.

Or, the child is mischievous because he wants to get rid of accumulated energy which must be expended in some way. Is he to blame if we fail to direct this activity into the proper channels where it may be turned to advantage and be converted into a constructive force?

A rational discipline, be it repeated, will be characterized by positive measures and influences. It will be based upon the old experience that an ounce of prevention is better than a pound of cure, and that a busy child is seldom a mischievous child. There should greet the child a bright schoolroom over which a bright, sympathetic, well-trained and intelligent teacher presides. The physical light will be transformed into mental and emotional light; the brightness of the room will inspire the children to be bright and cheerful.

Light, indeed, there be, and an abundance of it. Proper hygienic conditions generally. A hygienically constructed school house, schoolroom, daily program and course of study are in themselves mighty agents in matters of discipline. There must be a recognition of the individual needs of each and every child, physical, mental, and moral. There must be healthy work which keeps the children busy because it is adequate to their ability and natural interests, and which will concentrate their attention. Their *interests,* not their pleasure. There is a fine distinction between *interesting,* and amusing, or pleasing, a child. Manual work, excursions, physical training, etc., will afford an outlet for those pent-up energies which require direction.

Of course, there will arise, in spite of all precautions, opportunities for unhappiness and friction. Here the teacher's tact and justice must come forward. His aim must be, not to enforce an outward conformity, but to develop motives for right action in the heart of the child. A child is ever open to timely suggestions. The suggestiveness of children is marvelous, and just as it is not infrequently the cause of much morbid development, it will, in the hands of the tactful educator, become a serviceable and indispensable means for the building up of wholesome motives and ideals in the mind of the child. Prof. Baldwin, in his book on "Mental Development," states: "The transition from the involuntary class of muscular reactions to which the general word 'suggestion' applies, to the performance of actions foreseen and intended, occurs . . . thru the persistence and repetition of imitative suggestions." We see, then, the determinative effect which suggestions have upon the development of the child's will.

Whenever there are cases of persistent wilfulness, do not become angry or impatient. Punishment will avail little, it may even increase the stubborn resistance. In fact, it will often act as a sort of additional suggestion toward the wrong action, concentrating as it does the child's attention still more forcibly upon it. Stubbornness is frequently the result of some persistent idea in the mind which craves attention and crowds out other thoughts, and has the effect of an almost insane auto-suggestion. The best plan under such circumstances is to make as little as possible of the perverse activity and to gently lead the child's attention away from the persistent idea into another channel.

An early training in obedience will do much to guard the child against the development of fits of stubbornness, no doubt. Yet, a child's obedience is not a virtue. It has nothing in common with the willing submission of the mature mind to natural and ethical law. The child has not this maturity. His obedience is a reflex habit, acquired in the earliest years by careful and consistent training. The early implicit belief in authority, characteristic of the period of childhood, is quite instrumental in deepening the effect of the early training in the habit of obedience. It can be preserved only by ever-purposeful and harmonious treatment on the part of all educative forces,—a treatment which should never be harsh and tyrannical, but always firm and intelligent. Disobedience, if it is not the effect of pathological conditions, is invariably due to inconsistent and unwise treatment.

Prompt obedience being a reflex habit, the faculty to render it can also be trained by proper exercises in attention and reaction. Among these are the rising and standing on signal, taking books and pencils out in a certain order, calisthenic and rhythmic exercises, drills of various kinds. If these things are not overdone so as to degenerate into pedantic formalism, they are helpful in the training of the senses, of muscular co-ordination and nerve-control. They tend to shorten what is called the reaction time, i. e., the time which elapses between a sensation and the responsive activity set free by the brain which receives the sensory message.

Generally, inasmuch as this responsive activity in its evolution from mere reflex reaction to a co-operation of the higher centers becomes truly voluntary,—exercises of this kind, and manual work, art work, constructive work of all sorts, prove their value for the training of the will. The will, like any other faculty of the human soul, can be trained only by practice.

This training of the will thru exercises in reflex activity is the reverse process from the one which first engages the will to develop activities which may become reflex or automatic by practice. In the case under discussion, what is meant is the evolution of a higher consciousness and self-control from the combination of lower excitations on a higher associative level. Both processes are active in the development of the will, being mutually subservient. Yet, it is plain that the higher organisms, being distinguished from the lower by the development of these higher brain levels which are conducive to consciousness and true volition, have been evolved by the force of natural causes, thru reaction upon external stimuli, from those lower forms where there is no conscious activity.

There is no better way for the training of our pupils in self-control than to give them chances to exercise it. That is to say, we must early enlist their own sense of responsibility. As a rule, we govern too much, and hedge in our pupils with a large number of rules and restrictions the sense of which they cannot often fathom. This is the surest way of weakening their will-power towards right living. An arm all bandaged up, or chained to a wall, will lose its strength and flexibility; and a mind never allowed to move freely, will never be independent. Or again, our efforts to restrict the youthful spirit of our pupils and to tie them down to a set of mechanical regulations, may call forth a feeling of resentment in their maturing minds, and while we may succeed in repressing open rebellion, there will be estrangement. And can we suppose that we may train a body of children to republican citizenship if we lord it over them all the while in true monarchical fashion? Indeed, by enlisting the co-operation of our pupils, by allowing them an increasing amount of freedom and self-government the older and maturer they grow, we shall not only lighten our own burdens of discipline, but enable the children to develop in their souls the precious faculties of self-confidence, self-control, and civic responsibility.

And in employing methods of discipline, let us be reminded again and again of the different stages the child passes thru from infancy to adolescence. To each of these stages, different methods will have to be applied, because the standard of the child's emotions, thoughts and activities changes materially during these periods.

It is the most absurd thing in the marking of school records to mark that intangible thing which is called "conduct". It would require a more than human—it would require a diving insight into the workings of the human heart, to say with any amount of accuracy and justice that one child's conduct is 10 per cent. or 20 per cent. better than another's. For in the problems of discipline, what are we concerned in if not in character-building? Character—and the power for good. This once realized in our own minds, we shall reduce the various expressions of individual attitudes as we meet them in the daily life of the schoolroom, to their just, relative proportions.

To do this, the teacher himself must have the right spirit and attitude. He must believe in the child's better nature; he must not weigh down the child's soul by distrust, bitterness, sarcasm and injustice. Injustice destroys the child's confidence which it is naturally so ready to bestow; often it causes utter grief and resentment. The teacher who is an inspiration to his pupils and who possesses their implicit confidence and trust, will never be much worried by petty matters of discipline. He who knows how to arouse and hold his pupils' attention and interest, will have rare occasion for fault-finding and punishment.

Here, the teacher, the true teacher, is recognized to be an artist whose wonderful achievements are due to the intuition of genius. It is the privilege of the artist, and the secret of his uplifting influence upon his surroundings, that he can see beauty in everything.

This thought has perhaps been never expressed as fitly as in the words of Elmer E. Brown, now Commissioner of Education, in an article which he wrote years ago. Said he:

"For the artist teacher, it is of first importance to be able to see the good. Every school superintendent knows the teacher who has skill in finding the worst side of children; but such a teacher is not a true artist. There is another type of teacher, by no means rare—the teacher who finds good in every pupil, no matter how deeply it be overlaid with evil. In comparison with the severe critic of childhood, this teacher seems a fond and foolish dupe. I suspect that all true artists are affected with a certain sort of blindness. It is a merciful provision which enables them to see realities without the intrusion of actualities. The existence of this blind spot must be taken into account when we ask real teachers to make an impartial and dispassionate study of their children. 'To see the best,' as Mr. Barrie has said, 'is to see most clearly;' and he adds that 'it is the lover's privilege.' But next to the lover, it is the artist's privilege. This means, for the teacher, that it is his to find some aptitude in the dullest pupil and some virtue in the most vicious. He may reveal to his pupils capabilities and aspirations which they had never themselves discovered. It is not enough that he believe them to be good for something: he must have the wit to find what that something is. . . . It is not by frivolous condescension to their childishness that the true teacher nears himself to his charges. He takes them by the hand and leads them up to the higher ground where he is himself at home. . . . A great teacher is one in whose presence we think great thoughts; but our best teachers are they who lead us to our noblest thoughts after their bodily presence is withdrawn."

CHAPTER XVIII

The Treatment of Defectives

THERE is a class of children who for many ages past have been the object of much misdirected indignation and condemnation, who have not seldom been considered as incarnations of the devil, when they were largely the product of vices of their ancestors, of the injustice practiced in our yet rather unenlightened society, and of a generally unhealthy environment; at any rate, of conditions for which they were not responsible. It is a sad chapter in the history of our race in which the treatment of defectives is written—cruel, vindictive, reckless as it has often been. And where these unfortunates were not subjected to barbaric measures which were intended to drive out the evil spirits supposedly possessing them, they suffered from neglect or were made the butt of ridicule. The poor simpleton hooted at by ragamuffins in the street, the "fool" hung over with gilded bells and abused to please the drunken guests at some king's court, the blind beggar in the public thorofare—they all testified to the crudeness of an age when the thought that these unhappy persons ought to be the subjects of sympathetic care, and that much might be done to alleviate their suffering and restore them to approximately normal conditions, had not yet dawned upon men. Luckily we are now living in a more enlightened age, and many burdens have already been lifted from the shoulders of our ill-fated brethren and sisters. We have asylums for our insane, and institutions for defectives of all kinds, for the deaf and dumb and crippled and blind, and many are redeemed from apparent degeneracy to enter upon a useful life.

And yet there are still many who do not receive the attention and care and ready sympathy they stand so much in need of. The most pronounced cases are recognized and, as a rule, properly handled; but our schools and homes are full of such as are dragging along an unlucky existence because their conditions are not understood.

In order to arrive at an intelligent appreciation of the subject under discussion, it may be well to review the different classes of defectives which may be met with. It is hardly necessary to mention those afflicted children whose senses are so badly impaired that they are readily recognized as defectives. We may, however, remember that some, while not really blind or deaf, have such defective vision or hearing that they are prevented from doing normal work. Leaving out this class for the present, we may distinguish two great groups of defectives. First there are those suffering from genuine *psychoses,* i. e. mental diseases. Here again we have several subdivisions, viz.: Those in whom we can observe *insanity* proper, then *idiots,* and finally *criminals.* On the other hand we have the group of what German psychologists have called "psychopathische Minderwerthigkeiten," a term not easily translated into English. We may designate them, following Van Liew's translation of the term, as *"minor mental abnormalities."*

Both groups are characterized by abnormal development either from congenital causes (i. e. those working upon the child before birth), or in consequence of pathological influences of some kind after birth, or from both causes. There is noticeable an undeveloped state of body and mind, which represents either arrested development or pathological aberration of organ and function. Oftentimes the source of arrest or aberration was an accidental one, and the consequences could have been obviated had there been an early recognition. Certain periods in a child's life are particularly fertile in causes of temporary derangements which need careful and wise attention. Let us be reminded of the fatigue period at eight or nine, when undue forcing of the child may produce lasting debility which may injure not only his physical but his spiritual growth. Particularly fraught with perils are the periods of pubescence and adolescence when our girls and boys represent the adventurous stage in the development of state and nation, when their actions bear a striking resemblance, not only to the habits of pioneer and frontier life, but also to the life of those strata of society which even in our present civilization must be considered as residual of past historical stages of race development. The migratory impulse which is so largely the basis and explanation of truancy at this age, is very characteristic for the spirit of our adolescents no more than for the reckless life habits of a certain portion of our population. In his study of The Migratory Impulse vs. The Love of Home (Amer. Journal of Psychology, X, 1) Mr. L. W. Kline shows that many "have an insatiable desire for conjuring with the unknown factor that lurks in the untried, to commit their fortunes to the play of the mysterious and unconscious forces of the universe which to so many lend an irresistible charm to a new game, new neighbors, a new house, a new farm, a new position, a new enterprise. In gambling it is the element of chance, in trading and barter it is termed luck. Hence it is that we find so many of these people doing a shiftless, bartering, and gambling business where the conditions of chance and luck have their fullest swing. In all probability these conditions were at their best during the life of the primitive hunter and trapper. Here the probability that labor will be proportionately rewarded is at a minimum. The ratio of reward to labor becomes so infinitely small that he comes to regard his rewards and successes as due to chance rather than personal effort. One should not wonder, then, at barbarous and semi-civilized people persistently and continually creating conditions in which chance is at a maximum. Trapping, hunting and fishing are pursuits that reward more by chance than deliberate effort or certainty. Daily bread is the reward of *one lucky arrow,* spear, trap, or net out of a hundred of such instruments, and not by the sweat of the brow. The psychology of longing to be in some other place, for new conditions, for speculating, for gambling, is a reassertion of the old association between chance and reward formed when the welfare of man was largely dependent on the mysterious forces of chance."

This view of the psychology of these cases of lower humanity is corroborated by many other observations. Miss Jane Adams of Hull House, Chicago, once remarked that a very little familiarity with the poor districts of any city is sufficient to show how primitive and frontier-like are the neighborly relations among this class of people. Later she points out the impossibility of substituting a higher ethical standard for a lower one without the intermediate stages of growth. And, again, she speaks of the ethical epochs to which the different types of defectives and paupers belong. "We are," she says, "singularly slow to apply the evolutionary principle to human affairs in general."

It requires but little reflection to understand how in our adolescents, by neglect of their particular needs, we may cause such an arrest of their normal development that they will never grow beyond this primitive stage and thus become permanently defective—from the point of view of progressive civilization.

They will never grow beyond this stage? That would designate them as hopeless cases. Strong as this statement may appear, and altho it may not apply generally, provided the symptoms of defectiveness are early recognized and adequately treated,—we must not blind ourselves against the sad fact that there is indeed a percentage of defectives which we are forced to pronounce as *unredeemable*. Cretinism, e. g., is well known as an incurable malady in which bodily deformity and mental imbecility combine. Cretinism as well as idiocy admits of no complete restoration, altho we may mitigate it to a certain extent. The feeble-minded and also the morally abnormal ought never to be allowed to re-enter human society or propagate their kind after their own free will, as far as they have any.

Among the many causes producing these unredeemable defects are hereditary influences, defects and vices in the parents, malnutrition, the giving of alcohol to infants, epilepsy, etc. Darwin states that idiots who resemble the lower species of primates, mentally and physically, are often much more hairy than normal persons. "In idiots," says Professor Quantz,*) "the higher volitional functions are absent, and their restraining hand—which is heavy upon all of us, but unfelt because of its continual presence—is lifted from these unfortunates, and they often show by action and expression a forcible likeness to apes. The hopeless cases, which have much less intelligence than apes, show such atavistic characteristics as the vacant stare, gluttonous appetite, thick, everted lips, ill-formed, large ears, fingers long and slender."

Referring to Dr. Hamarberg's studies, Dr. Frederick Burk* reports: "In all cases, the brains of defectives showed marked deficiencies. The developed cells were far fewer in number and of irregular and retarded development. His study leads to the conclusion that the idiot brain is one which has suffered arrest of development in some particular, involving larger or smaller areas of the brain, at some early period. * * *

"Dr. Down some years ago contributed a classification of congenial idiots according to ethnic types—Negroids, Malays, Indians, Mongols. He asserts that more than ten per cent. of the congenital feeble-minded children are typical Mongols."

A curious class of idiots are those who exhibit some peculiar excellency along a special line of activity. To this class belong the negro idiot, "Blind Tom," a musical prodigy, and Inaudi, the mathematical prodigy, whose lightning calculations have been the wonder of the world. Dr. Frederick Peterson made a careful study of these cases. He says:

"We may deduce from a study of such cases several facts which are noteworthy. First, the mathematical aptitude in idiocy is never of a high order. The faculty consists entirely of excessive powers in mental arithmetic—in simple calculation, which is a better term to apply to it. Secondly, it is instinctive and congenital. It is observed only in the congenital variety of idiots, imbeciles, and degenerates; and on careful examination we shall find anatomical and physiological as well as psychological stigmata of degeneration in such cases. Thirdly, much of the faculty is due to the increased power of visualization—to great development of certain parts of the sight centres. Most of us, in mental arithmetic, compute by means of visual images."

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*Dendro-psychoses, American Journal of Psychology, IX, 4.

*Development of the Nervous System, Pedagogical Seminary, VI, 1.

These are his conclusions: "The aptitudes of various kinds described above as not infrequently encountered in idiots are all of rather low order. They are never found in any but the congenitally defective, who usually present the stigmata of degeneration. They consist chiefly of great powers of memory, visual or auditory, and of facility in imitation. There is no spontaneous invention. The *idiots savants* are mere copyists in music, modeling, designing, or painting; yet at the same time their talents stand out in strong contrast to their general feeble-mindedness. As a rule, the aptitudes are precociously developed, and are frequently lost before reaching adult life."*

Let us also be clear about one thing: Idiots are absolutely incapable of what we call choice—they possess no conscious individuality—their mental activity is automatic and essentially irrational. In this respect they resemble very closely that class of criminals which we may call "born criminals." The following chapter contains a more detailed reference to criminal tendencies in children. Only this may be said here, that criminality is either a pathological, i. e., diseased condition, or the result of what has been called degeneration. "By degeneration," says Fére, "should be understood the loss of the hereditary qualities that have determined and fixed the characteristics of the race."

The last class of psychoses to which attention must be called is insanity. It may be supposed that it is unnecessary to speak of insanity in a discussion especially devoted to the educational treatment of *children*. But this would imply an erroneous conception. Even children have not infrequently been known to be subject to mental derangements which must be classed as genuine insanity. The critical periods in the life of a child to which reference has before been made are often conducive to mental disturbances of this kind, again particularly the period of sexual development. And then insanity not only occurs in a form more or less permanent, but is much more frequently a transitory aberration, lasting some times not longer than an hour. Physical irritations, depressive influences (melancholia), fits of despondency, fright, etc., will produce temporary dementia. These phenomena must be recognized and properly handled, lest they lead to permanent derangements which, as has been indicated in earlier pages, will defy curative treatment. Many a case of discipline will be understood in its true causality if we remember these facts. Further, nervous troubles of all kinds, neurotic conditions, neurasthenia, in its manifold forms, sometimes border very closely upon true mental aberrations. The degeneration and inhibition of motor expression with a resultant breaking down of mental activity, such as we observe in incipient adolescent insanity, or dementia praecox, may be mentioned as typifying a more radical and permanent derangement occasionally to be found among our youth. The prevalence of nervous disorders in our times has led many to believe that they are becoming an increasing menace to our civilization and should be stamped out. There may be a difference of opinion on this point. But the author is inclined to agree with an editorial writer in the "Medical Record" who says: "There can be no doubt that if neurotics never married, in the course of time diseases of the nervous system would greatly lessen and probably die out; and it may also be true that a world peopled with phlegmatic, thick-skinned mediocrities would be happier, in a sense. But the question may here be asked: Do we want to be without our neurotics or can we get along without them? If history be ransacked, it will be found that most of the great deeds of the world have been performed by individuals of an highly sensitive, nervous temperament. The contention too that the thick-skinned mediocrities are the happiest persons is open to doubt. If a more or less animal life is the end to be gained, then they may; but at the same time the fact ought to be borne in mind that, while they never descend into the depths of misery, like the being with the ill-strung nervous system, yet, on the other hand, they are incapable of experiencing many of the delightful emotions and of ascending into the heavens of joy, as are the neurotics."

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*Cf. the author's paper on "Exceptionally Bright Children", proceedings of the National Association for the Study and Education of Exceptional Children, April, 1910.

Insanity proper is a disease which befalls its victims after periods of health. In this and in the following point does it differ essentially from idiocy which is largely congenital. Idiocy is an all round mental imbecility, the *idiots savants* notwithstanding, while insanity unbalances the mind without necessarily destroying the mental faculty. Many inmates of our asylums will astonish us by their rational mentality within the limits imposed upon them by their disease; some exhibit a really remarkable genius; and indeed, the relation of insanity to genius has often occupied and puzzled the mind of many a psychologist. On the other hand, it is often difficult to determine where rational mentality ends and insanity begins.

Some have maintained that all these children who are classed among the "minor mental abnormalities", and, in fact, all persons who deviate in any manner from the normal type have a touch of insanity in their mental or moral constitution. Certainly they represent the borderland of mental health and psychosis, and call for the most earnest attention and consideration of parents, teachers, and physicians. There are a large number of "exceptional" children, those who are peculiar or defective in some way, and require conscientious observation and adequate handling.

A very thorough study of these cases and their history and philosophy will be amply repaid by the resultant greater facility in solving problems of discipline. Details cannot here be given. Generally a distinction is made between *moral, mental,* and *physical* defects. This is, however, an artificial distinction; mental and moral abnormalities go hand in hand with, and are essentially conditioned by, disturbances in the higher associations which lead to organized thinking and self-control; and not infrequently physical defects lead to apparent mental and moral derangements. Captain Charles E. Woodruff, assistant surgeon, United States Army, had a most instructive article in the Philadelphia Medical Journal for April 7, 1900, on the use of alcohol by our soldiers in the tropics, in the course of which he mentions the terrible nervous exhaustion that results from long exposure to heat and moisture; this exhaustion of the nervous tissue, he asserts, produces a temporary craving for alcohol precisely similar to that of many periodical or chronic drunkards or to the craving of certain degenerates among tramps, beggars, and criminals, *who are in a condition of congenital nervous exhaustion unfitting them for work,* and whose periodical orgies are proverbial.

Lying, disorder, disobedience, sexual aberrations, etc., may often be traced to bodily causes. Truants of the degenerate type are found to be defective in sight, hearing, growth, etc. Eye defects of various kinds, nasal troubles, catarrhs, adenoid vegetations, etc., are frequent causes of mental and moral derangements, epilepsy, neurasthenia, and similar disturbances.

Troubles of digestion are a frequent source in children, of what is called persistent ideas, of anxiety, fear, irritation, bordering on temporary insanity. The child does not really know or understand what is the matter with him, but is obstinate and ugly. Mistaken strictness in such cases will produce very deplorable results. We may also be reminded of the night-terrors of many children which have their origin generally in digestive disturbances. Even temporary ailments in boys and girls (in the case of the latter particularly the monthly periods) will occasionally lead to mental and moral disorders.

In the discussion on the troublesome child in school, Superintendent Lowther made these remarks: "One day a boy came to my office with a note from his teacher saying that the bearer had become so obnoxious that it was impossible to allow him to remain in the room. He was idle, noisy, inattentive, obstinate, impudent, and perhaps a score of other misdemeanors could be charged to his account. My investigation developed the surprising facts that he was subject to violent fits of headache, that he had some form of catarrh, that he was almost blind in one eye, and that his hearing in one ear was defective. He admitted that at times he felt perfectly miserable. Poor, afflicted boy! No wonder he grew discouraged as he saw his inability to measure up with his classmates! His teacher, ignorant of his defects, held him responsible for all the work. He became despondent, morose, distrustful of his teacher, finally disliking her and charging maltreatment as a *cause for his misconduct*. Evidently the first duty of a teacher on observing a peculiarity in a child, is to study the cause."

That ignorant and vicious methods of education at home and in school will "spoil" children, morally, and mentally, is too well known to require special mention. Many a home, not only in the poorer classes by any means, forms the worst imaginable environment for a child. The *only* child in families where there are over-refinement and undue nervous tension offers a fruitful field of investigation. But there are cases of genuine defectiveness. Says Professor Allen M. Starr:* "There is an inherent activity in the brain of a child which leads to thought and soon to actions and speech; yet there are children who never get to the point of definite purposeful activity. Such children are usually in constant motion, but their movements have no object. . . .

"Another type of child far less defective is not uncommonly seen, who has nevertheless failed to reach that point of development which is evidenced by the power of self control, . . . lapsing into a state of apathy and mental inertia . . . incapable of arousing (itself) to effort. This is not laziness—it is an inherent mental defect. . . . That self-control is the highest quality of mind is evident from the fact that the first evidences of mental deterioration is seen in a beginning failure of this power."

Lack of veracity in children may sometimes be due to defective associations—a defectiveness which leads to illusions and hallucinations. It has been shown that there is a physical basis of precocity and dullness. Dullness may be only apparent and, as has been indicated elsewhere, an effect of a slower rate of development or a longer reaction time. "Dull and backward children", says F. M. Powell, (Backward and Mentally Deficient Children, Child Study Monthly, I, 9) "varying in degrees of mental torpidity, . . . are subjects requiring distinct methods of stimulation to unfold intellects hidden within their tardy cell structure. There are many factors, both physical and psychical, causing the semblance of mental dullness; in the former the cell structure of the brain tissue develops slowly during the plastic period, maturing later than the average, but when fully developed under favorable environment, they often rank with the strongest minds. It has been so in the past and will be so in the future. . . . Webster, Beecher and Fröbel were of this class. Also I may mention Linnaeus, Volta, Burns, Balzac, Edison and Scott as dullards in youth. . . . This class of individuals is not deficient, but ripens late in life." The same author states that a commission appointed by the British government to investigate the condition of 100,000 school children in Great Britain report seven per cent. as being mentally dull.

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*Some Curiosities of Thinking, Popular Science Monthly, April, 1895.

Real stupidity is a great affliction deserving of our most ready sympathy. "Natural stupidity is some form of mental weakness, or the child's mind may grow very slowly, or its growth may be temporarily arrested, or there may be great disproportion in the development of its various faculties, or it may inherit the induced or natural stupidity of its parents. It may be the stupidity of the poor drudge, prematurely deprived of its right to grow and play in freedom by the needs of life, stupid descendant of down-trodden human beings who, age after age, have but one hope and one aim, to keep body and soul together by unremitting toil; or, again, the stupid child of gifted parents, sad, strange stupidity where the parents seem to have exhausted all their intellectual force in themselves and have nothing left to bequeath; or what is called natural stupidity may be nothing of the kind—only in nine cases out of ten a misinterpretation of some outward signs misinterpreted by the stupidity of the people who deal with it. . . . The natural tendency of schoolmasters is to condemn as stupid the child who is dull in things scholastic. Life often reverses the schoolmaster's verdict, and shows that the so-called dullness was intelligence which had not yet found its proper channel." (Emily Miall, The Stupid Child, Educational Foundations, December, 1897.)

If we are to deal intelligently with all these cases of seeming or real mental defectiveness, we must first of all resist all promptings toward impatience and vindictiveness, and assume the attitude of sympathetic investigators and rational friends and helpers. Truly says Dr. W. Xavier Sudduth (Nervous and Backward Children, Child Study Monthly, 1898): "The old ideas of viciousness still obtain in regard to the milder forms of mental perversion. Lying, stealing, and kleptomania, from a biological standpoint, are the outcrop—being of purely natural instincts, commendable in a pure state of nature (? G)—but greatly to be deplored in our present state of civilization. If my premise is correct it seems to me that the rationale of treatment does not lie in harsh, unsympathetic measures of condemnation, in which the motives of the individual are impugned, but in a careful system of education looking toward the moral, intellectual, and physical upbuilding of a child."

It is impossible of course to give here detailed prescriptions for the treatment of these cases. Individual adjustment is the prime virtue in respect to it. In many cases it is merely a question of right nutrition, cleanliness and fresh air. A very telling example is told by Miss Jane Addams, in the Annual of the American Academy of Political and Social Science, as follows: "Permit me to illustrate from a group of Italian women who bring their underdeveloped children several times a week to Hull House for sanitary treatment, under the direction of a physician. It has been possible to teach some of these women to feed their children oatmeal instead of tea-soaked bread, but it has been done, not by statement at all, but by a series of gay little Sunday morning breakfasts given to a group of them in the Hull House Nursery. A nutritious diet was thus substituted for an inferior one by a social method. At the same time it was found that certain of the women hung bags of salt about their children's necks to keep off the evil eye, which was supposed to give the children crooked legs at first, and in the end to cause them to waste away. The salt-bags gradually disappeared under the influences of baths and cod-liver oil. In short, rhachitis was skillfully arrested, and without mentioning that disease was caused not by the evil eye, but by lack of cleanliness and nutrition, and without passing thru the intermediate belief that disease was sent by Providence, the women form a little center for the intelligent care of children, which is making itself felt in the Italian colony. Knowledge was applied in both cases, but scarcely as the statistician would have applied it."

A rational method of life and tonic treatment in general will do much toward redeeming deficient children. The stimulus of wholesome and interesting work thru which a concentration of attention can be effected will do wonders. Sense-training and manual work have been shown to be particularly helpful in this direction; in fact, they have been the only means in many cases to effect a regeneration. Dr. Seguin says physiological training advocates that "the education of the senses must precede the education of the mind" and the true physiological methods of instruction for those whose nervous system is imperfectly developed are "to exercise the imperfect organs so as to develop the functions"; and, second "to train the functions so as to develop the imperfect organs." Dr. Fernald says: "As compared with the education of normal children, it is a difference of degree and not of kind."

Hypnotic suggestion has also been applied with much success in the case of perverse mentality, persistent ideas, moral aberrations, etc. Individual methods, of course, are the only ones that promise satisfactory results. It is, therefore, and also for the sake of normal children, absolutely necessary that the defectives be, at least temporarily, if you will, removed from the regular classes and educated in special classes and special schools.

Professor Monroe of Stanford University obtained data relating to 10,000 pupils in California schools, finding ten per cent. mentally dull and three per cent. feeble-minded. He states that there are many children in public schools who could be more economically and wisely trained in schools adapted to their special needs, and remarks "There are many more who altho not positively feeble-minded, skirt the borderland of abnormality, and because of their large numbers—nearly ten per cent. of the whole public school enrollment—should receive the thoughtful attention of teachers and specialists." (Quoted in Child Study Monthly, March, 1896).

Very valuable and instructive is Mr. George Dawson's Study in Youthful Degeneracy. (Pedagogical Seminary, IV, 2.) He found that compared with the normal standard the general health of the delinquent children he studied was poor. In height, weight, girth of chest, strength of grip, they were also inferior to the normal type. Later the author speaks of "the neurotic character of many of the delinquents. . . .

"The fact that the prevailing criminal face is unusually broad suggests that the typical delinquent may either not have outgrown the infantile characteristics of his own race, or that he may tend to revert to a lower race altogether." He mentions many physical anomalies as indicating degeneration. "They are out of harmony with their environments; and are, far more than is usually appreciated, *incapable* of meeting the demands of a civilization that exists only by assimilating the good and eliminating the bad." And with regard to the unredeemable portion of these unfortunates, Dawson remarks: "The curative method, however, sure and satisfactory it may be in many cases, falls short of meeting all the requirements. There is a residuum of bad cases that cannot be gotten rid of thru physical, intellectual or moral discipline. The fate of an evil destiny is upon them. . . . Society has not yet learned to supplement cure with prevention. It quarantines its communities or families infected by disease; it takes advantage of every known prophylactic to prevent the onslaught or advancement of small-pox or yellow-fever; but it throws no quarantine about its plague-spots of vice and crime; it destroys no germs of immorality thru disinfection. . . . Like the man in the allegory, it is chained to a corpse whose dissolution must make civilization itself sick unto death."

Isolation—permanent isolation—is the only measure possible in these cases.

It goes without saying that in classes or schools for defectives only such teachers should be employed who have made a particular and conscientious study of their peculiarities and needs. But there are so many different grades of defectiveness—such a fine shading into degeneracy proper on one hand, and into normal mental health on the other—and so many will never be recognized in their true condition without intelligent and sympathetic observation in the regular school classes that every teacher of children should make it his duty to keep eyes and heart open to reach out to these unhappy creatures and to lift them up to higher levels of mentality and morality if possible.

Professor Josiah Royce, the eminent Harvard philosopher, published a contribution to the knowledge of mental disorders and defects from the teacher's point of view, in the Educational Review for October and December, 1893, from which these helpful and inspiring passages are cited: "There is no mental disease that is not also a nervous disease . . . Your ideal must be here to get a real, or close, a truly psychological insight into this possibly deranged mental mechanism. You must come not now any longer as disciplinarian, but quite sincerely as friend, as humane man offering help to a younger brother in distress. . . . You must be a true naturalist, and study this live creature, as a biologist would study cell growth under the microscope, or as a pathologist would minutely examine diseased tissues. In order to study, you must, of course, love. Minds and their processes must be delightful things in your eyes. . . . Intolerance and impatience have absolutely no place in such a scrutiny. You must fear nothing. You will be very tender with the sanctities of youthful feeling; but if in the course of your scrutiny, a poor heart gets open to you and you find it a very evil heart indeed, you will never show, yes, if you are wise, you will very seldom feel any contempt."

The words of Principal E. H. Russel of the Worcester, Mass., Normal School, will fitly close this chapter:

"It is a wholesome and helpful thing for a teacher to feel that all her pupils are exceptional children—which, indeed, in a deep sense is always true."

To the physician, in conclusion, the advice should be given to seek in all cases of this description the counsel and co-operation of the educator and psychologist who, in his turn, will act wisely by combining his efforts with those of the physician so as to establish perfect harmony between the various curative forces whose help is needed in the treatment of defectives for a further study of this subject in the light of newer investigations, of the publications of the National Association for the Study and Education of Exceptional Children, Plainfield, N. J.; of the Research Department of the Training School, Vineland, N. J., etc.

CHAPTER XIX

Criminality in Children

I. AS TO CAUSES

THE warfare against sin and crime is as old as the race. Yet the victory of virtue over the powers of evil is still but a beautiful dream. The rack, the gallows, and the executioner's axe, the prison and the torture-chamber, and the multitude of solemn judges, grave juries and of the less dignified beadles and jailers, which have for so many centuries been employed in the fierce and merciless struggle against Sin, by what is commonly called the administration of justice, have not succeeded in exterminating her. She triumphs now as ever. Some of our opinions as to what is right or wrong have changed somewhat in the course of ages; but wrong itself still exists.

Will this go on forever? The philosophy of pessimism answers "Yes." "We may," says Schopenhauer, "demonstrate to the egoist that he can gain large profits by foregoing small gains; to the malicious, that causing pain to others will bring suffering upon himself; but we can never hope to succeed in eliminating selfishness and malice, as little as we can ever persuade a cat to give up mousing. . . . We may enlighten the head, but the heart will remain untouched. That which is fundamental and fixed, in the province of morality, no less than in the intellect and the physical constitution, is born with us; educational influences can only mitigate, never radically change."*

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*Die Kunst kann überall nur nachhelfen.

What Schopenhauer says is true enough; but is it the whole truth?

The well known story of the painter's model may serve to illustrate a point in question. An Italian artist met with a child of exquisite beauty, and wished to preserve its features, for fear he should never see such loveliness again. So he painted the charming face upon canvas, and hung it upon the walls of his studio. In his most sombre hours that sweet, gentle countenance was like an angel of light to him. Its presence filled his soul with the purest aspirations. "If ever I find," he said, "a perfect contrast to this beauteous face, I will paint that also, and hang them side by side, as ideals of heaven and hell." Years passed. At length, in a distant land, he saw, in a prison he visited, the most hideous object he ever gazed upon,—a fierce, haggard fiend, with glaring eyes, and cheeks deeply furrowed with lust and crime. The artist remembered his vow, and immediately painted a picture of this loathsome form, to hang beside the lovely boy. The contrast was perfect. His dream was realized. What was the surprise of the artist, on inquiry into the history of this horrid wretch, to find that he was once that lovely boy! The demon had once been the angel: the innocent beginning and the sad ending of a tragic romance of life.*

Was this evolution inevitable? Is Schopenhauer right in maintaining that education could only have mitigated, but never changed, this course? Was the angel predestined to degenerate into a demon, to end his life as a convict?

There are three explanations of the apparent change: was there a mistake in the first judgment? The boy's face was that of an angel, the artist thought. What do we call angelic? Features that are merely beautiful, regular, and bewitching in outline? Blue eyes, rosy cheeks, ringlets of golden hair? Is an expressionless face angelic? A child's face looks untouched, undisturbed, inexperienced, so to say. It may move us because of this very absence of character, when we think of what furrows time and sorrow will engrave on this velvety skin. But does such an untouched face imply that behind it there dwells an angelic soul? Indeed not; a child's is an untried soul; his possibilities are as yet unawakened. It requires a knowledge of human nature rather than a mere enjoyment of childish beauty to understand a child. For the development of an angelic character, there is often need of a long life of trials and self-conquest. The features of a ripe old man or woman may be more truly angelic than those of a budding child. Or were there bad influences—an unwholesome environment—which ruined an originally well-disposed heart? Or, is it possible that a good child, endowed with fine qualities of character, can suddenly change and become a different being, as it were? We may find that such reverses are not infrequent during the pubescent period, when atavistic traits are apt to manifest themselves and to alter the course of a child's life.

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*Cf. John W. Kramer. The Right Road.

These questions, however, indicate plainly in what manner alone we can hope to gain an insight into the nature of criminality, to wit, by investigating the causes and influences that make for crime. Psychology and anthropology must be our guides; they prove that the thing needful is not so much a strict penal system for the *punishment* of offenders, as *curative measures* for the extirpation of *defects* which, under the now existing social conditions, appear as criminal tendencies, but were not so considered in past ages; defects which indicate, in the majority of cases, arrested or impaired development.

In one sense, crime is an anomalous condition—a degeneration of the perfect type; a disease of the mind, which has very distinct symptoms and causes. On the other hand, the criminal class represents an undeveloped or underdeveloped type, one that has not kept pace with the normal evolution of the race—a savage condition of the mind. Criminals of this class belong to a social stratum which has never been reached by the progresss of civilization; whose psychic development had come to a standstill many generations ago, or who are continually lagging behind. By investigating the causes of these two conditions—the pathological type and the savage type—we shall better understand the real nature of criminality.

The two great factors that determine our existence are *heredity* and *environment*. They also affect our moral life. Environment includes all those elements that influence us after birth, of which example and education are the most powerful.

There is, then, first the *criminal by heredity*. There may either be a direct transmission of criminal tendencies, or merely a transmission of degenerative traits which may develop into criminality in the children, even tho the parents were otherwise defective.

Little doubt is entertained at present that there is such a thing as criminal neurosis, i. e., a transmissible constitutional condition of the nervous system which prevents the development of a wholesome moral sentiment, of will power, and of self-control. We may be reminded of the well known Juke family. The progeny of five sisters consisted of 540 individuals; of these, 76 per cent. were criminals, 20 per cent. paupers; only 4 per cent. were not a burden to society. Another criminal woman, studied by Dr. Elisha Harris, had 623 descendants; among them two hundred criminals, the others mostly drunkards, idiots, paupers, and prostitutes. Up to 1883, of all the girls admitted to the Michigan Industrial Home for Girls, one-seventh had insanity in their parentage; one-third had criminality, and two-thirds had intemperance in their parentage. This shows what a fatal rôle intemperance plays in the production of criminal neurosis, or at least of general degeneration.

G. E. Dawson, in his valuable study of youthful degeneracy,* arrives at this conclusion: "Crime, insanity, idiocy, pauperism. . . . happen as virtue, health, intelligence, and prosperity happen, because some antecedent conditions have produced them."

There is, then, a *criminal class*, and among them, there are such individuals who are incurable and irredeemable, from whom the dependent and criminal classes are being constantly recruited.

Of criminals born from criminals there are relatively few. More numerous are the representatives of an indirect criminal heredity. Thus we have criminals born from intemperates, paupers, defectives of all kinds. Their abnormality is due to a mind inherited by them, which is infested with inherent weakness, containing unstable elements. But even these unfortunates are not in many cases criminal from birth. Accessory factors are needed to develop in them true criminality. In other words, there is some weakness or defect present which makes these individuals less effective and potentially criminal, but always more or less *dependent*.

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*Pedagogical Seminary, IV, 1, p. 225.

Intellectual weakness is a frequent symptom indicating also moral weakness, and it has been observed that intellectually abnormal children incline to criminal offenses. Weakness of the mind involves an insufficient grasp of the relation of cause and effect—a feeble comprehension of consequences; it marks an undeveloped, animal type. Idiocy has been called an atavistic backsliding into savagery—closely related to criminality, i. e., to manifestations which in reference to our state of civilization appear criminal, while they were perfectly normal at the savage stage. Investigations have established the fact that idiocy is pre-eminently a hereditary phenomenon, the following hereditary causes having been pointed out: (1) Neurosis in the family of one or both parents; (2) Intemperance in the family of one or both parents; (3) Excessive strain (by physical or mental labor, or worry) on the part of the mothers; also their lack of preparation, physical, mental and moral, for motherhood.

The point mentioned last is especially significant as it is only too often disregarded. M. A. Pinard* testified to the greater influence of the mother in the determination of the future well-being of the child. Landor says, "Children are what their mothers are." E. W. Bohannon, in his investigations of peculiar and exceptional children,* comes to this conclusion: "The influence of the mother in transmitting peculiarities is greater than that of the father, is greater for girls than for boys, and about equal to that of the father for boys." The mother represents the conservative, type-pre-

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*Pedagogical Seminary, IV, 1, p. 50.
*Pedagogical Seminary, IV, 1, p. 3.

serving element; man the variable element—for better or for worse—in the reproductive process. But how often is not a girl's preparation and fitness for motherhood problematical; how often is not her body debilitated by overwork or overstimulation of some kind, her nervous system depleted, her mind superficial and frivolous—how often is not the lot of woman, especially in the poorer classes, that of a drudge who almost succumbs under the pressure of her manifold burdens and duties. This wretched condition is responsible for much of the idiocy, or at least some sort of deficiency, observable in the offspring.

Researches based upon data on a large number of children possessing peculiar traits have shown beyond doubt that *physical, moral,* and *mental* deficiencies are intimately related to one another, being largely due to causes and influences which date back into remote family history. For, as is well known, it is not always our immediate progenitors from whom we inherit our peculiarities; the life-germ of an individual is a compendium of his family tree with all its branches; it contains potential energy in manifold composition and varying proportions of all the different elements which have been transmitted to our time from our ancestors. Indeed, we recapitulate, in a certain abbreviated form, during the years of embryonal life and childhood, our entire family history, from the dawn of human existence, in consecutive culture-epochs; and in the same measure as the younger years reproduce the earliest stages of human civilization, we pass consecutively thru stages of greater differentiation—race, nation, kin,—and at the age of puberty, the family traits proper will assert themselves with especial vigor. It is not a rare occurrence that at this stage, all of a sudden as it may seem, new characteristic traits will crop out, an inheritance from this or that ancestor, probably long forgotten, and which may modify very materially the nature and course of the child. In consequence of such a constitutional revolution, we may then observe the unexpected appearance of an ancestral neurosis, i. e., of a defect based upon an inherited weakness which only now reveals itself and which may eventually lead to crime.

While we are, to a certain extent, helpless in dealing with the effects of a decidedly criminal heredity, a consideration of the *factor of environment* presents a much more hopeful case. And yet, as things are, it is a chapter of intense human misery and wretchedness which we now enter upon and which must be studied with the most serious attention.

In reviewing the life conditions of children who develop criminal tendencies, we find, as was stated in the beginning, that the dependent classes are the main source of crime. Even if children should escape the burden of hereditary influences, there are factors in their environment which tend to affect their development abnormally. Evidently we must admit that criminality is in a large measure the *product of social conditions.*

Dr. Bayard Holmes* says: "The greater portion of our defective classes acquire their defects after birth, either thru (1) improper environment, (2) thru disease, (3) thru the machinery of society and industry." One who knows the wretchedness of life conditions which are the portion of so many thousands of our fellowmen will understand and appreciate this assertion. Dawson, in his study of youthful degenerates, quoted above, says: "Nearly 58 per cent. of the boys and 46 per cent. of the girls come from poor homes, that is to say homes in which poverty and drunkenness were the rule. Twenty-three per cent. of the boys and 30 per cent. of the girls appear to have had no regular home at all. They either were inmates of public or private institutions or they were practically vagrants. The most of the cases had poor educational advantages, either because of parental or social neglect. Practically all of them had bad associates, and were allowed to run the streets in idleness." The average industrial or reform school does not seem to have a good showing in these figures. Dawson continues: "The first elements to be noticed in the early surroundings of these delinquent children are the poverty and improvidence of the parents. These things mean improper and insufficient food in infancy and childhood. . . . If the children of immoral and improvident parents suffer from semi-starvation physically, much more do they suffer from intellectual starvation. Mental growth is not favored by conditions that constantly tend to impair physical vitality, by irregular attendance at school, or by general parental or social neglect to supply incentive and stimulus. As regards morality, the disadvantages of bad environments are equally obvious. Whether moral sensitiveness be regarded as innate or as a development like any other quality of mind, it depends for its fullest and best expression upon circumstances. In the language of Strahan, '*As surely as the blush of health fades before starvation and disease, so does moral loveliness fade in the presence of vice and degradation.*' A man of large experience in dealing with delinquents recently said to the writer, 'Perhaps there are some people who would be moral under any circumstances, and others who would be immoral under any circumstances; but most people are moral or immoral as circumstances make them so.' "

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*Child Study Monthly, October, 1895.

Who will dare to refute this assertion? "Judge not, that ye be not judged!" Who will ever sound the human heart to its deepest depths? Can anyone among us boast of never having felt the promptings of evil? He that is without sin among us, let him first cast a stone at the unhappy creatures whose childhood was a curse and a martyrdom, and who may end their luckless lives in a prison cell. It is so easy, in a cozy home, surrounded by love and care, or at the joyous feast of plenty, to forget the hungry and shivering and to be hypocritically scandalized over the fallen.

There are three main adversaries of virtue that are constantly at work attacking the walls of righteousness and breaking down its ramparts, so that crime may triumphantly enter thru the gap; (1) insufficient nutriment, (2) fatigue, (3) disease.

These physical causes of evil are often the effect of the life conditions of the unfortunate classes; but they are also not infrequent guests in the homes of the well-to-do.

Proper nutrition is a much more essential factor in the well-being of children (no less than of adults) than most people suppose. The preacher in the pulpit, the teacher in the school, have no surer determinative influence upon the ethical development of our national life than has the cook in the kitchen. And yet the "new woman" fancies household duties to be beneath her dignity and just about good enough for menials and slaves. The hearth was sacred to our ancestors; it ought to remain a sacred place in every home to our children and children's children. Not only is a man's heart most safely reached thru his stomach, as the saying has it, but the welfare, the mental and moral salvation of the children, of the generations to come, depends very largely upon rational nutrition. The French physician, Dr. F. Hallager, in "De la Nature de l'Epilepsie," maintains that epilepsy is anaemia and that lack of nutrition is a potent irritation. The capacity for normal mental work is determined in a large measure by the character and quantity of food. There is certainly much malnutrition in the homes of the poor. Poverty is only one cause among others of this deplorable condition; ignorance and improvidence do the rest.

But, as Prof. M. V. O'Shea says: "It happens frequently in the homes of the well-to-do, where the expense can have nothing to do with the matter, that the children are permitted to live almost wholly upon those foods which seem to delight the palate, as cookies and cakes in a variety of forms, but which contain relatively little nutrition, the principal ingredient being starch in the form of wheat flour. It is often the practice to begin in the early months of a child's life to feed it highly seasoned and sweet foods, thus establishing an appetite which later is not satisfied with the simple nourishing meats, grains, or milk. . . . Albumin is brain food. . . . In the poorer homes, in our cities particularly, many are unwise in the expenditure of what money they can spare for food, purchasing mainly starchy foods, which, altho of relatively little value anyway, are yet more suited for the adult engaged in out-of-door labor, than for a child at mental work in school."*

It needs to be emphasized that it is not advisable to give children the same fare as the adult. The needs of children are essentially different from those of their parents. Here is a fruitful field of study for the conscientious mother, much more important and momentous than the study of Greek in "ladies' colleges." It is a study, too, requiring a high degree of common sense, science, and art. What is needed is not the filling of the stomach with an indifferent mass of palatable dainties, but the provision of really nourishing substances such as are needed to build up the tissues consumed by the life process in the various activities pertaining to human existence and development. Insufficient nutrition, while interferring seriously with normal mental activity, also produces moral defects. "That imperfect nutrition is the cause of much of that emotional estrangement in childhood which is called irritability, ugliness, viciousness, or something of that sort, has been satisfactorily evidenced to the writer as the result of a number of observations which he has been able to make upon young children."*

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*"When Character is Formed." Appleton's Popular Science Monthly, Sept., '97.

These morbid symptoms disappear as soon as rational nutrition is provided.

The pitiful conditions which are the lot of the pariahs of society, which prevail among the children who work in factories and coal mines, in shops and stores, as newsboys or bootblacks,—who suffer from chronic fatigue and overwork —are well enough known. Fatigue is caused by a variety of causes, among which, indeed, malnutrition must again be enumerated, so that this first mentioned enemy of virtue is doubly dangerous. There are, however, a number of other hygienic causes active at home, in school, wherever we are: lack of the proper amount of light and air, of order and cleanliness, of warmth and comfort, of rest and recreation, as well as of moderate diversion and amusement: and, furthermore, those numerous overstimulations of overtaxations which are characteristic of the modern rush and bustle of life, even in the so-called "best" classes—in the salons and academies, at theatres, restaurants, and ball-rooms, and in a thousand ways. Many children, from whatever cause, are really in a more or less chronic state of fatigue all or most of the time, and there are not a few adults, too, who can keep themselves on their feet in the mad rush of business or professional duties, only by resorting to artificial stimulation. None of these are normal, and of "tonics" there are untold numbers. Fatigue, it has been shown, produces a relapse into the animal method of reasoning, or rather nonreasoning; it interferes with the keenness and integrity of the intellectual processes; the memory becomes halting and uncertain, and reason grows illogical and erratic.

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*O'Shea, loc. cit.

As pointed out before, fatigue is often the result of overstimulation. Such overstimulation begins not infrequently in the nursery, when mothers are ignorant of the simplest laws of nursery hygiene. "Infants of a few months as well as children of maturer years are permitted to be in the presence of the older members of the family much of the time. Guests always expect to see the baby, to hold it and to stimulate it in all sorts of ways to see how prettily and intelligently it reacts. . . . Few people seem to appreciate how such treatment taxes the nervous strength of an infant. . . . The young child with its fresh, innocent ways, is not infrequently regarded as a plaything for the entertainment of its elders, and so is teased and tormented in all sorts of ways because its response is so novel and interesting. . . . The evil effects of overstimulation are evident also in the attempts of parents and teachers to hasten as rapidly as possible the intellectual development of the children under their care."*

Many parents consider it perfectly legitimate to make the children recite, sing, and perform on the slightest provocation for the friends and visitors of the family, or to "show off" at more or less public entertainments, without special care that pedagogical and hygienic precautions be not neglected. It is a common practice, too, especially among the poorer classes, to take young children to various public places and make them stay up late, and go home, or be carried home, in a more or less sleepy condition, at dead of night, in crowded and ill-ventilated public conveyances. Few mothers consider it their solemn duty rather to forego for a time such amusements than to expose their tender babes to the evil effects of such educational and hygienic transgressions. The consequences, common as they are, are pitiably serious.

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*O'Shea, loc. cit.

During the various *critical periods* of the child's life, of which there are at least three, hygienic neglect and overstimulation are fraught with particular danger. This is especially true of the period of pubescence and adolescence. Physical neglect, caused by ignorance and false modesty, is apt to breed untold sufferings, to impair the equilibrium of the nervous system, and health and strength generally, and to result finally in the ruin of thousands of constitutions, particularly of girls. Again, impairment of health predisposes for all kinds of deviations from the code of morals. Concerning the hygiene of the pubertal period, much enlightenment is still needed. Adolescence is an epoch in the life of every young person that requires the most careful and intelligent treatment; it is a time when old and narrow modes of thought are broken up and old ideas are being revised; when the flexibility of the mind, resulting from a peculiar development of the brain occurring at this time, promotes the formations of new associations and ideals. Out of the ruins of unconscious childhood, there rises the new personality, the consciousness of independent thought and power. The ripe fruit severs itself from the parent tree and begins its individual life. This process is often painful; it may cause friction and unhappiness for both parent and child, and sometimes leads to an outspoken rebellion against once respected and revered authority and order. From the chaos of contending emotions, there emerges an individual character. This is the age when the young man (or woman) becomes aware of the tremendous variety of life possibilities—when he tries many of these, and finally chooses those that fit his individuality best; and these will become his permanent possessions and activities. In this confusion of ideas and inspirations, the straight and even path is sometimes lost sight of, and there appear symptoms of seeming moral trespasses which, tho not always of a very serious import, nevertheless require the strictest attention of the educator. Truth and falsehood are at times confused in these young struggling souls; especially young girls of this age are frequently given to untruthfulness and prevarication without apparent cause or reason. Even in otherwise perfectly normal children of this age, we may come across distinctly criminal tendencies. Says Tolstoi in his autobiography: "I have read somewhere that children between twelve and fourteen years of age are especially apt to become murderers and incendiaries. When I recall my own adolescence (and the state of mind I was in one day), I can understand the incentive to the most dreadful crimes committed without aim or purpose, without any precise idea to harm others—done simply out of curiosity, out of an unconscious need of action." And E. G. Lancaster states in his valuable treatise on "The Psychology and Pedagogy of Adolescence"*: "On the moral side there is a new and tremendous access of possibilities. The young person awakens to the fact that he can commit crimes of which he never dreamed before. There are numerous expressions of intense surprise at the awful thoughts of crime that go rushing thru the mind at this time."

We tremble, in reading these statements, to picture to ourselves what the consequences would be if from some cause, the mental and moral development of adolescents, passing thru this stage, were checked, especially in the absence of educational advantages which could act as a corrective, so that this condition of their minds would become the permanent one thru life. Such things do occur—more frequently, indeed, than one cares to believe; and it is probably due to some form of arrested development during the pubertal age, or to some unchecked impulse to realize in action the demoniac promptings of adolescent fancy, that we have so large a percentage of criminals of adolescent age. Of 7,473 prisoners in France in 1885, under twenty-one years of age, there were 4,718 boys and 1,063 girls, or a total of 5,781 (77.36 per cent.) of children of from twelve to eighteen years of age. Out of 26,000 evildoers arrested in Paris in one year, 16,000 were less than twenty years of age.*

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*Pedagogical Seminary, V, 1.

Fatigue is in the last instance a pathological phenomenon, and is often caused by disease, or will in its turn produce diseased conditions. Impaired health, as has been shown in the preceding paragraphs, is responsible for many abnormal symptoms in the life of the soul, and modern child study has collected a great number of surprising data. Selfishness, for example, a common fault in children—and parents,—and which is a very evident stimulus for criminal tendencies, is in many instances occasioned by ill health, and will disappear as soon as a normal physical equilibrium is re-established.

Certain diseases leave the body in a depleted and weakened condition of a very specific kind and which is the source of much intellectual and moral anomaly. Reference is here made to disorders of the visual and auditory centers. The percentage of children whose vision is abnormal or whose sense of hearing is more or less impaired, is surprisingly high. Upon perfect sense training, however, depends the possibility of reliable observation and conception; and thus it becomes very plain that sense impediments must necessarily interfere with the normal intellectual development of the children. Soon we may observe graver disturbances—apparent indifference, disobedience, laziness, and a number of other seemingly moral defects.* If not speedily recognized, diagnosed, and cured, such phenomena may indeed lead to truly moral inefficiency. Helot shows that when these cases *are* cured, a large number of children are transformed, so to speak, both from a physical and a moral standpoint. Yet about twenty-five per cent. of all children suffer from defects of hearing, adenoid vegetations and the like alone. What a field for exact observation and curative measures!

That these troubles are so wide-spread, is largely due to the almost criminal negligence with which even in educated families infectious diseases are handled, such as measles, scarlet fever, etc., which often leave these defects behind, tho the attack itself may have been mild. It requires the greatest amount of energy on the part of school and health authorities to guard against the spread of infection among the pupils of schools, in places of public amusement or meeting, in street cars and railroads, etc. Few care to be restricted in their personal liberty, and the danger of infection and the spread of disease germs is usually underrated. All these factors, nevertheless, contribute to keeping the general health of the community on a low level, and to thus making possible a more or less universal, intellectual and moral inefficiency.

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*A. Corre, "Crime and Suicide."

*Cf. "A Working System of Child Study for Schools," Groszmann, p. 32.

Besides these more or less physical elements which influence the child after birth, and aid in the determination of its future, we must consider the educational effect of the environment. Educational effect is really caused by everything that surrounds the child; and it is by *example* that the most powerful impressions are produced: the example of the persons who constitute his immediate society, no more than the example of the street where he spends the plastic years of his childhood; the example of parents, teachers, brothers, sisters, and schoolmates, of relatives and friends; the example of the milkman and the scrubbing woman, of the cook and the railroad conductor; the example of the pictures which beautify his home, and that of the glaring posters which advertise theatrical performances or patent medicines; the example of the books and newspapers which are tolerated or cherished in the home, as well as of those which find an illegitimate way into his hands and interest. Even a very essential portion of the direct training at home and in school is a matter of example: the child is made to imitate what his elders do. The first potent factor in education is the imitativeness of children. Children possess surprisingly little logic; rationality and really independent opinions are the result of long experience and a vigorous adolescence. Imitation is one of the great means by which experience is obtained. Thus is shown the tremendous responsibility of parents and teachers, whose example rather than precept will work its way determinatively into the child's soul. The trouble is, that the child is apt to imitate what is pernicious as well as what is beneficial, being yet unable to discriminate. "Folly is always infectious; epidemics of good sense are rare," says a German humorist. If we could only place our children in an environment where all examples make for righteousness! The millenium would then not be far away. But alas! we live in a world where deceit and duplicity have the upper hand; where public and private administration and business are based largely upon falsehood; where conventional lies mar even the sacred integrity of the home. How few of us are really frank toward one another!

And in such an atmosphere our children are brought up. We preach to them a sincerity and charity which we do not always practice. Dare we wonder when the carelessly scattered seed of evil takes root and sprouts forth in many an unwary young soul?

That children are imitative is a trite fact. And yet, few of us realize how *very* imitative they are. Wondrous tales may be told of the so-called suggestibility of childhood. We may be reminded of the influence of companions and chums, which is often much greater than that of the parent and teacher. Dawson, in his study of youthful degeneracy, quoted before, found that in the case of every boy and almost every girl, some chum, or several chums, had played a more or less important part in their lives.

How necessary, then, is a careful supervision and guidance of our children—how essential it is that we eliminate from their environment as much of bad example as we can control, even tho it be at the sacrifice of our own convenience!

The problem of right education, so that the product be an ethical character, is truly a difficult one. Much of urgent import can be said on this score. Our present so-called educational system deserves this name only in a very modest measure. It stimulates the intellect at the expense of character; it develops shrewdness rather than wisdom. It implies more drill than development; it grafts upon the real nature of the child an artificial, conventional substance. Often it conflicts with the most fundamental instincts, and thus causes an instability of character, a vacillation of will impulses, such as will become sadly manifest in moments of trial and temptation. Much in our present education is artificial, mechanical, arbitrary; and its product is only too frequently a living, conventional lie.

Thus we have a society wherein many factors co-operate to intercept the healthy growth of virtue, and to favor the development of moral defects and criminal tendencies.

2. AS TO REMEDIES

The case being thus stated, the question arises: What can be done to remedy the evil, to eradicate crime if this be at all possible? Space will permit of only a few suggestions, such as are obvious from what has been said before.

We ought to be settled in our mind about one sad fact, to begin with, viz. that there exists such a thing as a *criminal class* many members of which are practically unredeemable, and which a healthy society casts out as it casts out lepers, without, however, being justified in condemning them. The Italian criminologist and psychologist Lombroso has introduced the term "born criminals." A majority of imbeciles will forever remain public burdens, and a certain percentage, small but distinct, will never outgrow criminal tendencies.

We may apply to this psychic phenomenon the general term "degeneration," remembering that we include two distinct types under this term: the pathological type, and the savage type. Degeneration signifies a deviation from the normal type as it has been evolved thru the centuries of civilizatory progress and differentiation; such deviation naturally implies a lesser degree of stability and power of procreation. It means the loss of those hereditary qualities that have differentiated and fixed the characteristics of the race so that it attained permanency; and consequently a decreased capability of competition in the normal struggle for existence. Indeed, the unredeemably deficient would die out but for intermarriage with individuals of a more normal type, as sterility is a recognized effect of inherited deficiency.

This suggests the desirability of a timely recognition, management and *isolation* of the unredeemable by the agency of organized society. Isolation, however, must not be understood to mean punishment in this case any more than it is in the case of people suffering from infectious diseases. We may insist upon small-pox patients being isolated in special hospitals without desiring to brand the unfortunate inmates as outcasts, or connecting the idea of punishment with their confinement. The time will come, let us sincerely hope, when sin will be understood to mean misfortune; when moral defects will be treated like intellectual and physical defects: that is to say, as pathological cases, symptomatically, and not as punishable crimes. Our penal system is sadly in need of reform on the basis of psychological and anthropological science. All these problems are in their very essence pathological, or in another sense, educational problems.*

It is almost needless to say that even apart from the demand of isolation, there ought certainly to be special schools, or at any rate, special classes, established for the education of children who are in any marked degree deficient. To lay the burden of their education upon the ordinary schools, is a grave error. Not only do they constitute an ever present danger of infection and contagion for the healthy children; but their own peculiar needs can be best attended to where all educational efforts are adjusted to that end. We ought to save as many as can be saved.

There is another side to this. Bohannon (loc. cit.) shows that advantageous traits are inherited more than twice as frequently as disadvantageous ones. This indicates greater vitality on the part of those who are in greater conformity with the fixed type of civilization. It points on the one hand to the fact of a natural weeding out of degenerates, as shown before; on the other hand to the great blessing of the influence of better environment and education. Bohannon proves that less and less deficient children may be observed to be born in a family of degenerates as the biological conditions of the parents improve. He calls this the *triumph of environment over heredity.*

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*Cf. also LaMettrie, "L'Homme-Machine", published 1748.

The change at adolescence may also join in as a helpful factor, viz. when good, e. g., race-preserving hereditary traits should happen to crop out at this period so as to defeat the degenerative effect of the bad, and of the environment. This possibility may explain some seemingly miraculous regenerations.

But the problem under discussion is only one part of the great social problem of elevating the masses. The creation of healthy social conditions will go a great way towards the elimination of crime. For the sake of illustration of at least one factor in this process, I will quote from a very suggestive report of Mr. Jacob A. Riis on the first public playground instituted in the slum districts of New York City. "It may have been a coincidence that the rough gang of boys which used to disgrace that block on Second Ave. and occasionally did much mischief, has not been heard from since the old graveyard became a playground. It is a fact, anyhow, and my experience with Poverty Gap makes me feel quite certain that there is a connection between the two things. Over there it used to be next to impossible to go thru the block without being pelted with mud by the ragamuffins who very early developed into toughs of a peculiarly vicious stamp. They half killed two policemen, and out of sheer malice, beat to death the one boy in the block with a good reputation. The neighborhood was as desolate as it was desperate; but when the wicked old tenements were torn down, and a public playground was opened on the site of them, with swings and sandheaps and wheelbarrows and shovels, the whole neighborhood changed as if by magic. There were no more outrages."

Here is a wide field for the social reformer and for progressive city boards!

Then there is need of a systematic fight against *intemperance,* the great evil; but care must be taken that this fight does not degenerate into ill-advised fanaticism and immoderate infringements of personal liberty for which there is no scientific basis and justification. There must be an intelligent and civilized warfare, such as will remove the real causes of intemperance. What we must principally fight against are the conditions of malnutrition and fatigue, of nervous depletion and degeneracy which will produce an undue craving for stimulants.

Malnutrition and fatigue are the two great curses of suffering humankind. Well said Ingersoll in his lecture, "What Must We Do in Order to be Saved?": "I believe in the gospel of good health, and I believe in the gospel of good living. . . . Let us have good food, and let us have it well cooked; it is a thousand times better to know how to cook it than it is to understand any theology in the world".

And let us elevate the conditions of women. The woman's question does indeed need most serious attention. The overburdened women in the lower and middle classes ought to have their share of the higher aspirations of life, such as will lift them on the plane of modern civilization. The problem of how to relieve woman of the burden of home-duties without destroying home-life and atrophying her sacred functions, is a very difficult one; but we must bend our energies on its solution so that our wives may preserve that precious physical strength which is requisite for blissful motherhood, and so that they may have time and energy left to devote themselves intelligently to their prime office, the education of our children in the home. Let us remember the wretched conditions of most of our working girls from whose ranks the mothers of the poorer classes are recruited. Miserable wages, overwork, temptations of all kinds are their lot; vain and unwholesome amusements relieve their cheerless existence only to cast a peculiarly dismal light upon their pitiless situation. Only too true is what Hall Caine, in the "The Christian", makes John Storm say on the present position of working women upon whose well-being so much of society's welfare rests.

In the upper classes we may discover a high degree of overstimulation and frivolity. How few of the well-to-do women of to-day are capable of fully living up to the functions of motherhood, or are willing to do so. Most of them are victims of fashion and "society." Alone the irrational dress of women is responsible for many defects in children and thus of many burdens to society. During adolescence, when girls (and boys, too) need the most careful consideration and most hygienic attention, they are most mercilessly chained down to their schooldesks, to pass their examinations, to graduate, at the risk of studying to exhaustion. Such is the decree of vanity and morbid ambition; so will it tradition and fashion which walks without remorse over thousands of ruined constitutions. Let us not forget: the problem of ethical strength is at the same time a problem of physical health, of normal nervous activity.

It must further be demanded that our boys and girls should be educated for the duties of parenthood. Away with that pharisaical prudishness which prompts us to ignore the sexual element in the education of the healthy and moral life, a prudishness which anyway has nothing in common with genuine purity, but which causes countless sufferings. When it comes to marriage, let this holy union be based upon love rather than commercial and "society" considerations; and make sure that the biological conditions, the transmissible factors, in the contracting parties be healthy and advantageous. Not only the sins, but even the conventional follies of the parents are visited on the children upon the third and upon the fourth generations.

The keynote of salvation is not a crusade of emotion, but a reform of public and private education. A rational education of the masses, of the classes, of the public, of the individual, of the parents, of the children. What we need is a new moral conscience, a new spirit and enthusiasm, a renewed sense of our tremendous responsibility. "He who wrongs the child, commits a crime against the state," says John Storm in "The Christian". The problem of popular education is, consequently, one of the most serious tasks of the state. But the more essential portion of *that* education whose most beautiful fruit is an ethical character, is within the domain of home-influences. This is a great subject which here can be alluded to only in passing. We must not persuade ourselves, by the way, to think that the homes of the so-called better classes offer in all instances a wholesome environment. Those homes where father and mother intelligently co-operate, are unfortunately quite rare; generally one will destroy what the other builds. And let us understand that nothing is so confusing to the moral standard of our children; nothing will more piteously and effectively destroy their simple and natural confidence than this ruption between those who ought to stand before their children's minds as ideals if not of perfection, at least of noble aspiration and effort, of unity, harmony, and love.

And which are the "better" classes? The wealthy? But wealth, as a result of success in business, is not infrequently due to a wide and elastic conscience. Can we measure our commercial system with a rigorous moral standard? It has been claimed that nowadays no business can be successfully operated without systematic lying. This may be an exaggeration; but the assertion is not so very wide off the mark. In the homes of the representatives of this commercial order, outwardly refined as they may seem, there is no genuinely moral atmosphere, there can be no healthy child-life.

Even where wealth is the result of thoroly honest effort, this effort may be so excessive, an effect of a mad competition, that an over-stimulation and a depletion of the nervous system is produced, and the rush of business may leave the unfortunate millionaire a nervous wreck. Under the circumstances, children may on the outset inherit nervous defects, and their development, while seemingly normal for a time, may contain the germ of degeneration. The commercial spirit which rules our age, does not offer an unqualifiedly healthy environment for the rising generation. At best, it imposes upon us the spurious standard of outward success in the place of the ethical standard of wisdom and moral perfection.

Even in the really good homes—and fortunately there will ever be a majority of these, among the rich and poor—moral education is a subtle, difficult task. We must first of all study and understand each individual child in order to develop him along his own individual lines, and to adjust our measures to his individual needs. No more fatal error can be made than to judge him from the standpoint of the adult. Children are by no means little men and women who can think and feel as their elders do, or whose standards are essentially like ours, or who can be expected to appreciate in every instance our adult standards and motives. Children are altogether different beings—they represent in their evolution from infancy to manhood and womanhood a series of epochs which correspond broadly to the periods in which the race has gradually emerged from barbarism and attained civilization. If this development is in any way interfered with or arrested, they may remain in a condition, or stage, which unfits them for the normal civilized life, and which will eventually give rise to abnormal and, perchance, directly criminal tendencies.

Children of school age are not moral beings, strictly speaking; to them, few things are in themselves either right or wrong. Conscience is not an early growth; it is the outcome of a slow process of maturing. A sane mind is the product of rational education. Where this is wanting, the mind remains more or less irrational. Children live in the present—to them, the future is only a dream of wild possibilities; they do neither understand, nor are they particularly concerned in, the logical consequences of their actions. This is, indeed, the paradise of childhood: the age of inexperience. Let us not unduly hasten their development lest by impatience or indiscretion we destroy precious germs. Yet how often do we not make the attempt to fashion child-nature in accordance with our own foolish notions; how often do we not misunderstand our children, and misinterpret their motives—and treat them as sinners when they were but children!

Let us be reminded once more of the greatest factor in the education of young children: their imitativeness and suggestibility. It has been seen how dangerous is the unwholesome example. We must fortify our children against the evil influences of spurious suggestions, by developing in them the art of independent thinking. "One very important thing for the schools to teach is the art of independent thinking. History is replete with the records of delusions, evil scares, crazes, and stampedes, and one who reads these records and sees their parallel in a thousand phenomena of every day life, cannot help wishing for some process in education that will prepare men to see *all* possible aspects of a thing, enable them to play a sort of mental solitaire until these aspects are classified, and make them self-reliant enough to trust to their own judgment after it is formed." (M. H. Small, loc. cit.)

The power of independent thinking will enable the child early to distinguish between helpful and spurious suggestions.

We must also endeavor to win and retain our child's confidence so that he may in each and every case come to us, and to us alone, with his troubles and problems to seek advice and consolation. By converting our children into our friends, and making their friends our friends, as far as this is reasonable, there will be established a unity of educational influence. The school-life of the child ought to be but a phase of his home-life, or a widening of the home circle. But above all, let us surround our children with an atmosphere of noble inspiration. Let us make the home a place where love and righteousness reign supreme. Let us remember: good examples are better than precepts. Then we may hope that iniquity will gradually disappear from this world. Let us hope that Ingersoll was right when he said: "I believe we are growing better. I don't believe the wail of want will be heard forever: that the prison and the gallows will always curse the ground. The time will come when liberty and law and love, like the rings of Saturn, will surround the world; when the world will cease making these mistakes; when every man will be judged according to his worth and intelligence."

CHAPTER XX

The Meaning of High School Education and Secondary Differentiation

THERE has been a tendency to construct school curricula upon a retroactive basis, that is to say, to determine the courses of the lower schools so as to make them directly preparatory for entrance into the higher. Much mischief has been done in this way. Not only has there been much misconception afloat as to what constitutes an elementary preparation for higher courses; but the special needs of the successive stages of child-development have been signally disregarded. We should turn the order around and say not that the ordinary school should adjust itself to the requirements of the high school, nor the high school offer a fitting for college, but that the high school courses must adjust themselves to what a rational elementary course has done for the child, and the college must adjust its requirements to the possibilities and characteristics of the high school graduate. Or still better, we must recognize that each school represents a distinct stage of mental evolution, and ought to minister to the needs of the growing mind at each stage.

The high school age is that of adolescence. At 15, the individual is born, and a new awakening takes place in the mind of the youth and maiden. It is the time when reasoning buds forth, altho it is counterbalanced, and occasionally almost drowned, by a tremendous gushing up of emotional elements. The individual attitude asserts itself, often with a force so antagonistic to the transmitted, conventional moulds of family and general environment that it is truly startling. Out of the many possibilities afforded by hereditary and acquired endowments, there takes place the selection of a differentiated activity, commensurate to individual character, and which will make the individual a force to react upon his environment. It is the office of secondary education, then, to handle appropriately the material it is to work with, to develop the minds of our youth along truly rational lines, to allow of choice as well as to provide breadth of experience in order to avoid a premature narrowing down to one-sided notions and passing fancies; to direct the heart from the crude self-centered emotions which well up at this period, to those ideals which point to the race, the human family as such, and to its preservation and uplifting.

"During adolescence, when the interests, the likes and dislikes, the enthusiasms and energies are very intense for periods of moderate length, it seems that specialization along lines of strong interest should, by all means, be allowed in the high schools, and possibly in the last grammar grades, in order that those adolescent energies be not wasted or turned into morbid channels, and that the habit be fostered in the youth of doing serious, intense work in the pursuit of what appears to him to be a worthy problem."*

That the high school age is that of individual choice, has long been recognized. First, there set in a reaction against the prejudies of the classicists who maintained that without an exhaustive study of the ancient languages, or the so-called humanistic course in general, no higher education was possible, and this reaction has assumed enormous proportions. While the humanistic studies still hold their own to a certain extent, the educational value of the so-called realistic studies has become more and more admitted. Science, and even technical instruction, are gaining ground steadily and increasingly. "English, the modern languages, history, and the sciences," said Pres. Elliot, "can be made in secondary schools the vehicle of just as substantial training for the human mind as Latin, Greek and mathematics."

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*A. C. Ellis, "Suggestions for a Philosophy of Education," Ped. Sem., V, 2.

The desire to restore to the individual of high school age the right of individual choice, has given us the struggle over a system of "electives." In some high schools, there are exclusively elective courses, offered under different names, each separate course being somewhat meagre, it is true, and each furnishing a somewhat different combination of instructional elements. The recognition of the fact that none of these separate courses may just meet the requirements of particular students has led to the further provision that each student may, under certain conditions, elect his studies to suit himself. In some instances, this arrangement has produced almost an instructional anarchy.

An elective anarchy would be preposterous. It has been shown that under such a system a boy or girl may go up to college, or graduate from high school, without ever having had a decent training in history. Yet, history is a subject of which every truly educated person ought to have more than a smattering. It is at the foundation of intelligent citizenship. There are certain studies which are, at least in a measure, needful for everyone; such as history, language, science, and mathematics. To eliminate any of these elements from the secondary course of any individual would mean to cripple it sadly. Art inspiration, literature, and manual dexterity belong in the same class.

Again, too much "electiveness" would make re-adjustments on the part of the maturing student very difficult. Yet, such re-adjustments are characteristic of this period of wondrously rapid development. The individual attitude does not spring into existence full-grown like Minerva from the head of Jupiter. It is a growth. Few boys and girls of 15 are quite sure of their future career; it is a pity if they are forced to choose then. They require more opportunity for experience. And then, there are unexpected changes, sometimes complete reversions of feeling and aspiration. For these, we must be prepared, and in order to build securely for the future, we must lay in every youth's mind a broad and solid foundation composed of those things which are indispensable for culture, be it directed to whatever special subject it may hereafter.

Of course, we may even at the outset recognize the *different types of mind* which present themselves to the observant educator, and which we may discover as early as in the elementary school—always remembering, however, that the mind of the child of this age is not fixed and stereotyped, but still plastic. There are the linguistic type, the constructive type, the mathematical type, the artistic type, the scientific type, among others. We may be permitted to arrange them all in two great groups:

(1) The classical type—the abstract mind;
(2) The modern type—the realistic mind.

All such classification has inherent defects; but much might be said in justification of this way of grouping.

But so much seems evident that high school differentiation should not consist so much in a more or less arbitrary *selection of* subjects as in an opportunity for the *individual attitude toward the subjects* to assert itself. We must start with the pupil's own point of view, and from this lead him to a recognition of the proper relations and proportions of all branches of human knowledge with reference to his individual needs. But before a special subject can assume the dimensions of a world-view, the different studies and occupations must have been explored and partly assimilated to be at last organized under the common heading of the individual aspiration and view-point.

The individual attitude, tho, of course, based upon special aptitudes and experiences, is pre-eminently an *emotional* attitude.

"It seems to be a universal fact that intellect grows out of emotion. Feeling, knowing, willing, is the order. . . . Instead of the regular repression now almost universally practiced toward what many may be pleased to call a craze or fad, these should be encouraged. The boy or girl should be pushed into them, and the glow should be turned, if possible, to a white heat. . . . The well-poised man of many sides, who, altho a specialist, sees the value and bearing of all other branches of knowledge on his own subject, cannot well result from anything else. To repress or discourage such tendencies limits our horizon at once."*

The plan the author has in mind would present itself in about this form: with some exceptions perhaps, which need not here be specified, *the course of study should contain about the same subjects for all.* There should be the languages and literature, mathematics, history and geography, science, manual and art work, civics, etc. But not every student would approach each branch from exactly the same point of view, or do precisely the same work. To the philological mind, the structure of the languages, the style and mannerisms of an author, the historic evolution and kinship of languages and their distribution over the face of the globe, the abstract phases of mathematical reasoning, would appeal most strongly, while science work would assist him in his training in scientific methods of deduction. Art would to him be of interest mainly in its bearing upon the style and mannerisms of different peoples, while manual work would counterbalance his tendency to soar in abstract heights, by making him conscious of the concrete conditions of life on the earth which is after all the habitation of those speech-endowed peoples, and the source of all those concepts the mode of expression of which is so fascinating to him.

The commercially inclined will seek facility in operating quantities thru their mathematical study. They will familiarize themselves with the great staples and products of different countries and with scientific methods of manufacture, by way of botany, zoology, mineralogy, chemistry, physics, and geography. The manual occupations will be found extremely valuable as illustrative of, and instructive in, industrial civilization, technical progress, and the means of transportation. The historical evolution of mankind will present itself to their minds under the aspect of a gradual development toward intercourse, exchange, and commerce. The languages, modern rather than ancient, will be of importance to them as vehicles of intercommunication. They will study art from the industrial side, in its application upon the mechanical arts, and the perfection of designs for textile and other decorative trades. They will need a training in the proper and rapid reading of technical and scientific literature, books of travel and exploration, as well as on the character and idiosyncrasies of the peoples with whom they expect to traffic. Even civics will have a differentiated meaning to them, as it will represent the idea of law and order, of equity and mutuality, as the only sure basis upon which to build a safe commercial structure and international intercourse.

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*E. G. Lancaster, "Psychology and Pedagogy of Adolescence."

Again, the artistic mind will assimilate all those things most readily which appeal to his sense of beauty. History and literature are, to him, the history of ideals and of methods in art, expressive of the genius of the nation which produced them. The earth presents to him a variegated aspect of impressive scenery, the characteristic setting of the great events of history which arouse his emotional interest and inspire his representative imagination. Science opens up to him a stupendous empire of beautiful forms; even anatomy and physiology serve him only to appreciate the true and harmonious proportions of the human form. The artist understands thus how function and form are intimately related. Language, to him, is also a matter of artistic handling—he cares for its poetry, beauty of sound, style, and grace of expression. Mathematics appeals to him as the science of proportion and symmetry, and thru the manual occupations, he acquires skill and trueness of hand and eye. Likewise, the scientific mind, the constructive mind, or whatever you please, will approach these self-same subjects which are truly needful for all, each from his own individual point of view.

There are, in every true high school course, elements of general culture which cannot be readily disposed of as subservient to special needs and ends. Thus, the inspiration of human idealism as afforded by literature and art, and the development of a just estimation of civic duties which everyone needs as the future citizen of a democratic republic, must not be made light of in secondary education.

It will be seen that a scheme like this would make the transition from one course to another easy enough, as soon as the student's attitude of mind should change. For the subject matter in all courses would be essentially alike, so that there would be no gaps to speak of. In fact, a change would hardly be called a transition from one course to another inasmuch as the change of attitude would work its own adjustment.

This plan would also afford the most natural basis for correlation. "Correlation", says Arnold Tompkins, "in its deeper and truer sense, is nothing more than the organic life of the subject in its construction by the student in the process of realizing some life purpose. The objective world is fluid to the purposes of life and thought; and . . . the external world shaped to one purpose constitutes one subject, and shaped to another, another, etc. To correlate truly is nothing more nor less than to organize a subject."

It may be asked whether secondary differentiation as the author understands it would require the establishment of separate high schools that would correspond to these different individual attitudes. It will be seen later that for specialization on the high school level, separate schools may commend themselves; but where secondary education is considered an intermediate step toward higher culture, separation would seem inadvisable.

Even when there are pronounced promptings in this or that direction the wisest course would be not to allow the student to devote himself to special studies too exclusively at this stage, to the exclusion of general culture, notwithstanding what has been said before. Crazes and fads should be temporary.

It is especially the plasticity and immaturity of the adolescent mind, its frequent conversions and sudden transformations which should make us cautious.

Indeed, it would be equally unwise to force a young man or girl of this age into studies which are distasteful to him or her. There must be discreet acquiescence, at least temporarily, and tactful guidance, and above all: *patience.* While special provisions may be made for such particular cases, there may not even be any need of special courses. We may *group the students as to age, maturity,* and *companionship,* and in other ways which would present themselves to the executive wisdom of the principal of the school, for the purpose of convenient handling. But otherwise, we may *teach the same subjects to the different types of mind in the same class* as long as the teacher knows how to individualize so as to bring out each student's best effort, and to make each one a factor in the development of those broad elements of culture which are indispensable to all. Each student will then be allowed to do the work in the way he likes best, and can do best, and he will contribute to the common lesson what interests him most from his point of view. This very co-operation of all will prevent anyone's becoming too narrow or superficial, and there will be wholesome competition mingled with the spirit of mutual respect and appreciation of the different individual standpoints and talents—a very valuable gain on the ethical side, to be sure.

Respect for the individual attitude implies, of course, a valuing of results from the individual standpoint. There must be a certain *elasticity in the requirements for examinations and graduation.*

One other point demands attention. Of all the differentiations taking place at this stage, the *sexual differentiation* is the most marked and momentous. There is not only a change taking place in maturity and aptitude, but essentially in emotional attitude. The girl of 15 is much more different from the boy of 15, than is a girl of 12 from the boy of 12, or the boy of 15 from the boy of 12. Should not this differentiation be recognized in high school work?

The justifiable tendency to give woman as perfect an education as man has enjoyed thru ages of woman's disfranchisement, has induced us to treat girls as if they were boys, to urge them thru the same instructional grist mill which grinds out our male citizens. In many instances the effect has been that boys were treated as if they were girls; in other words, in the effort to fit the course to an average non-sexual standard, the best interests of the boys were sacrificed, and there happened what the author called elsewhere a "femalization of public school education." At any rate, there has been a great disregard everywhere of the special needs of the two sexes. I do not by any means plead for a complete separation of the sexes in school, for co-education has many advantages and is the natural condition; neither do I wish to recommend a curtailment of the girls' opportunities. But the girls of high school age need such training as is best suited to their particular wants, and which would correspond to their special functions and sphere of activity without barring out the possibility of special professional training.

To the author's mind, a girls' course which would appeal to, and educate, the female instincts, should lay special stress first of all upon a proper training of the emotions, thru literature and history. Thru literature, the girl will be introduced to character study which is the best foundation for psychologic insight. With woman, this insight will remain largely intuitive, and literature is the best means to cultivate, deepen, and mature this intuitive power. History will mediate to the girl the ideals of civilization such as have found expression not only in the large life of communities and nations, but in the family circle whose inspiration was basic in all civilizatory efforts and developments. It is woman's share and function to inspire man to action, and this function is expressed largely thru the medium of those emotional ties which create the home. Woman is the home-maker, and the arts of home-making should stand foremost in the girl's course as it commends itself to me. A beautiful, bright home is a wonderful thing, and the cultivation of beauty thru art is one of the methods of acquiring the skill to create one. But there must be more substantial verities to enter into this precious fabric to make it real and durable. A home cannot thrive on sunlight and moonshine only. The hard facts of daily life must be mastered, and the battle with those little things that compose human existence must be waged. Domestic science, sewing, and the knack of housekeeping are indispensable factors in the training of the young girl. And she should study mathematics, too, as a counterweight to overstrained romantic tendencies perhaps—or rather to train her in logical thinking or, if you please, in order to enable her to keep the household accounts straight.

Mrs. Mary Wright Sewall, as president of the International Council of Women, Indianapolis, in a symposium in the October, 1899, "Chatauquan", said with regard to the education of her own sex:

"In fundamentals, I would not differentiate the education of woman from that of man at all. I think what is good for man is good for the development of the same fiber in the other. In advanced education I would differentiate woman, education from that of man by giving her more of history and philosophy. I would give her more history because she will get less of the value of history thru her contact with life than man will thru his. I would give her more philosophy for three reasons: First, her habits of life will probably give her more time in loneliness, which to the untrained mind is almost certain to induce a habit of day-dreaming and mental idling. Second, the habit of mind induced by philosophical study results in larger patience and surer fortitude, qualities which woman particularly needs. Third, as her life is likely to be given to details, and to the details of relatively small matters, she needs the horizon and inspiration derived from considering large general questions such as those which are the subject of philosophy. Practically, I would differentiate her education by giving her more natural science, that her more limited contact with human life may be supplied by quick perception of the relationships and resources of nature."

One caution must be added with regard to our endeavors to give our girls the best possible education. Their organism is much more delicate than the boys'; and especially during the adolescent period the girl needs much care, and discreet attention. This warning is given by H. S. Curtis:*

"Woman has such severe drains upon her energy . . . that in physical and intellectual achievements she has ever been the inferior of man. She may not be inferior in capacity, but she is in ability to endure protracted labors. The effect of excessive brain activity is most disastrous of all. . . . Mitchell, after commenting on the sad state of health of the American girl, lays the blame to the schools. He says: 'I firmly believe, and I am not alone in this opinion, that as concerns the physical future of women, they would do far better if the brain were very lightly tasked, and the school hours but three or four a day until they reach the age of 17 at least.' "

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*"Inhibition," Ped. Sem., VI, 1.

Every young woman, however, should be a graduate in housekeeping, as it were. Norwegian girls must be educated in household duties and render proof thereof before they are allowed to marry. Taking a suggestion from Helene Lange, E. A. Fabarius proposes in "Die allgemeine Dienstpflicht" to require by law of every normal girl of 18 years of age, three years' service in housework, nursing, sewing, etc., corresponding to the obligatory army service of the men.*

Woman's work were not complete did it not include maternal functions. Truly, motherhood is the crowning glory of woman's life, and if she has no children of her own, she will bestow that tenderness and educational intuition which are inherent in her nature, upon other women's children, as nurse, or governess, or teacher, or friend. But intelligent motherhood does not come by instinct alone. There is need of careful training also in this direction. Every high school course, at least, for girls should include some sort of pedagogic preparation, some instruction in the handling of children, a kind of kindergarten course of a more general character, perhaps, leaving out the specially professional exercises. The girls should be given abundance of opportunity to assume responsibilities in taking care of younger children, at recess, on excursions, and the like. Similar provisions, by the way, should be made for boys—intelligent fatherhood is about as rare as intelligent motherhood.

Mental overstrain is apt to work much mischief at this period, as we have seen. This should not be so construed as to mean that there be only perfunctory work done, in a dawdling, frolicsome sort of way. Not at all. This is also the time for concentration of attention, and many suffer, not from overstrain, but from lack of concentrated effort in regular intervals. There must be intense work done by both boys and girls, at the proper periods and in due proportion. But this strain should not be prolonged unduly, and must be supplemented by physical exercises, sports, and gymnastics, so as to develop their youthful bodies to their full strength and to supple springiness, that they may be the ready tools of elastic, energetic minds.

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*"Notes abroad," Ped. Sem., VI, 1.

In what manner, then, does a real high school distinguish itself from a special school, a trade school, a technical school, a commercial school of like grade?

We may perhaps express the difference between the two classes of secondary schools in this wise: a high school is an institution for the imparting of higher culture, commensurate to the individual mental attitude of adolescent students, and affords a training preparatory to further specialization on a higher level. The special high school, on the other hand, is an institution for the finishing of a life preparation along specially defined aptitudes;—it affords opportunity for elementary differentiation. It is for those who are either incapable of higher culture, or whose life aim to on the plane of rapid adaptation to "practical" pursuits; or who are prevented by some cause from attaining to the realization of the best that is in them.

Much discussion has arisen of late as to whether in the high school a difference should be made in the training of those pupils who expect to go to college, and those who do not. While the reader may be reminded of what has been said in the beginning of this chapter as to the folly of retroactive courses of study, and as to each stage of a child's development demanding a treatment responding to the natural wants of this period, some other consideration may be allowed to enter into the discussion. A "preparatory" pupil, that is to say, one who expects to prepare himself in the high school for a college course, will study languages, modern and ancient, with a view of using them as tools in his college work, for gaining culture thru the study of literature, science, and philosophy. The "non-preparatory" pupil, on the other hand, the one whose career will probably end with the high school course, should approach these same languages in a different way. He must be inspired by the humanistic side of language study *now*, as there will be no later opportunity. Out of his language work he must derive the literary, artistic and ethical influences which the preparatory pupil will enjoy later on, on the college level. The non-preparatory high school pupil will have to sacrifice some of the drill in correctness and facility so as to have the full benefit of the culture value of language study at this stage. This view of the two currents of educational effort which are supposed to run side by side in the work of the high school, involves indeed an interesting aspect of the problem.

It may perhaps be claimed, with some degree of justice, that the distinction between preparatory and non-preparatory pupils refers rather to the differentiation between high schools proper and the secondary special schools of which mention has been made. And it would surely be unwise to emphasize the difference between these two classes of students so strongly that readjustments to changing attitudes and aspirations were futilized. Whenever a prospective preparatory pupil, having been confined to narrower limits, should find that he cannot, or cares not to, go to college, his high school education will have largely failed of its purpose. Prof. Dewey says of the function of the high school:

"It must on the one hand serve as a connecting link between the lower grades and the college, and it must, upon the other, serve as a final stage, as itself the people's college, to those who do not intend to go, or who do not go to college."

It seems that a student who has received a good all-around high school education, will prove to be the best possible material for college.

Broadly speaking, the *high school stands for the adolescent part of what has been called a liberal education.* The following inspiriting paragraph from an editorial in Appleton's Popular Science Monthly, of January, 1900, will fitly close this argument:

"A liberal education, let it be thoroly understood, is not one which delivers over an individual to the dominant influences of his place and time, whatever they may be, but one which enables him to react, when necessary, against such influences under the guidance of wider views and deeper principles. It is an *illiberal* education, let it embrace what it may, which simply equips a man for exploiting for his own benefit the conditions and tendencies which he finds prevailing in the society around him; and too much of what passes for liberal education has, we fear, had no better result. . . . Let our colleges and universities see to it that they understand 'a liberal education' in the right sense."

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